



# Rural Environment. Education. Personality. (REEP)

Proceedings of the 11th International  
Scientific Conference

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Jelgava

# **Rural Environment. Education. Personality. (REEP)**

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## Foreword

Rector, professor, Dr. oec. Irina Pilvere inform the society, that Latvia University of Agriculture has changed its name in the English language by the Decree of Senate, and now it is called Latvia University of Life Sciences and Technologies started with the March 6, 2018. The University maintain its legal public status and its organizational identity as well as its rights, responsibilities and duties confirmed in all its agreements, contracts and other international public documents. The name of the University in the Latvian language remains the same – Latvijas Lauksaimniecības Universitāte, and its acronym in all languages is LLU.

The Institute of Education and Home Economics of the Faculty of Engineering, organizes annual international scientific conferences *Rural Environment. Education. Personality (REEP-2018)*. Authors of the articles are from 11 countries - Bulgaria, Czech Republic, Estonia, Germany, Latvia, Lithuania, Poland, Kazakhstan, Russia, Ireland and United Kingdom. Totally 39 educational establishments are represented in the Proceedings.

**Aim of the Conference:** to find out solutions, exchange ideas and highlight topical problems on the 21st century education tendencies in the context of problems and solutions for nowadays school, university and adult education, competence, life quality in home environment, design, development of professional education and career.

Thematic groups of the articles:

- problems and solutions for nowadays school, university and adult education;
- education for getting competence;
- life quality in the context of home environment, home economics, design and craft;
- development of professional education and career.

The Conference focuses on perspectives of education and training systems considering changes in rural social environment imposed by changes in a society both in global and local scope.

The titles of the bibliographical sources in other language than English are transliterated in Roman alphabet and translated in English in brackets.

The first section **Problems and solutions for nowadays school, university and adult education** includes researches in the fields of philology, pedagogy and psychology.

Articles covering conducted researches in the **field of pedagogy** talk about new research methods in the articles: “Expertise as a research method in education” and “An Innovative Method for Data Mining in Higher Education”. Alternative teaching methods are also researched in the article: “The Educational Aspects of Integrating Popular Music into Lessons”. Teachers and students need not only methods of teaching and learning, but also support, motivation and preparation. These variables are researched in the following articles: “Evaluation of Special Pedagogical Support in Early Childhood Education Institutions: the Attitude of Parents and Teachers”, “The study of students' motivation for future professional activity” and “The experience of professional preparation of teachers in universities of Kazakhstan”. Also, a vocational school’s management is researched in an article “The Development Trends of Management of the Institutions of Vocational Music Education in Latvia”. Quality assurance of the study programs is also discussed in the article: “Management of a Study Programme in the Context

of Quality Assurance in Higher Education”. Also, significant research topics as interdisciplinary education in multicultural environment, Paradigms, approaches and principals of knowledge management and opportunities to improve the digital skills of health care specialists are discussed in the first section.

Articles covering conducted researches in the **field of philology** and the teaching and learning of a foreign language include articles as: “Improving the Use of Linking Words in Tertiary Level Essays”, “Modern Educational Domain: Bilingualism and Multilingualism in Teaching Foreign Languages”, “The understanding of the concepts of first language, second language and foreign language outside of Latvia”, “Error Types in the Learner Corpus of the Second Baltic Language” and “The Basic Principles of National and International Standards Convergence in Terms of Teaching Languages for Non-Linguistic Students”.

In the **field of psychology** several interesting researches are presented: “Definition and Dynamics of Gender-Specific Behaviours of Latvian Males and Females” and “Research of the Relationship of Criminal Violence, Adult Attachment Styles and Personality Traits of Violent Male Offenders”. In the domain of organizational psychology, the powerful people’s biographies are analyzed for modern leaders’ identity construction.

The second section **Education for getting competence** articles reflect development in higher education of research using IT in Kazakhstan, intercultural competence in Lithuania, lifelong learning programme design in Czech Republic, mathematics and foreign language competence in Latvia; communicative competence, reading and biology literacy in primary education in Latvia; teaching quality in vocational education in Cambodia; development of creative imagination of various age groups in Latvia; development of student cooperatives in Poland.

The study of forming of research competence of students in Kazakhstan on the basis of information technologies is targeted towards future teachers of mathematics in accordance with the modern model of education. There were identified methods of application of modern information technologies in educational process of the pedagogical universities contributing to the improvement of training of the future teacher for research activity in the conditions of the usage of information technologies in the study.

Two articles reflect the studies on the development intercultural competence in international study programmes at university in Lithuania. The results revealed that within development of intercultural competence through different international programs, student motivation (opportunity to study abroad, to learn or improve a foreign language, to form new relationships and to develop personal skills) as well as conditions of educational environment, relationships between the university teachers and students and acquired intercultural experience gain almost importance. Generally, according to the study results, international university students (more or less) enjoyed their studies in Lithuania regardless of whether they faced any challenges or not. Studies abroad are seen as a priority factor in intercultural competence, which promotes learning of other cultures, confirms the importance of foreign language skills and opens a path to personal and professional development. The study in music teachers Masters’ programme confirmed that the strategies of the (self-) development of intercultural competence of prospective music teachers are efficient and successfully applicable in organising the (self-) development of intercultural competence of foreign students. The revealed educational preconditions make the basis for the development of intercultural competence of prospective music teachers.

The study of the Institute of Education and Communication of the Czech University of Life Sciences emphasizes that designing and implementing lifelong learning programme projects in practice is one of the basic prerequisites of a university graduate. The reviews from three academic years in a row, namely 2013-2014, 2014-2015, 2015-2016, were analyzed in terms of the value of ratings of selected items given within the appropriate scale. It was concluded that students of the last years of Bachelor’s degree programmes, both full-time and part-time groups, were able to project education programmes of varying scope and for different target groups.

Contribution of mathematics to the engineering education in assessment of students is identified in the study which is related to more than 100 first-year students from the Faculty of Information Technology and Faculty of Engineering of the Latvia University in 2016/2017 study year and more than 70 second-year students from the same faculties who are studying in 2017/2018. Comparing their own competences before studying mathematics in university and after completion of the higher mathematics course students recognized improvement of the mathematical competences and identified importance of maths studies in engineering education.

The study on English for special purposes examines the factors influencing undergraduate students' perseverance during the ESP study course at the Latvia University of Life Sciences and Technologies (LLU). The study based on the focus group discussions conducted with the 1<sup>st</sup> year undergraduate students from different faculties of LLU revealed the factors influencing students' perseverance. The analysis of the study results shows that students choose passive rather than active role in language studies in university. They lack the necessary perseverance in order to achieve better results in studies. The 1<sup>st</sup> year students sometimes do not have motivation to study professional terminology as they do not see the link between the language and its practical application. Another issue is that students often lack learning skills and motivation to make an effort.

Students' communication activity in small-group learning is analysed in the article. The aim of the study is to define the factors associated with the communication activity in each type of learning groups. The study determined that the factors affecting communication activity in the mixed-achievement group and in the unmixed-achievement group can be both similar and different. A common factor of the communication activity in both types of learning groups is asking for help and/or offering support for group members.

In the study of meaningful reading skills for improvement of biological literacy in primary school is emphasised that the reading literacy of Latvia's 15-year-old students is low and results of the improvement of meaningful reading skills applying different reading strategies which affect students' biological literacy are analysed in the article. The opinion of 58 students and their teacher of biology about the assessment of students' reading skills was examined by using different reading strategies aimed at improving students' reading skills in the experimental group and checking their level of reading by using PISA tests. The study findings showed that students' level of reading after the application of reading strategies increased and their biological literacy improved.

The study in the frame of the project "Enhancement of Technical Education in Cambodia" which was implemented within the Czech Development Cooperation during the years 2015-2017 focused on external evaluation of the quality of teaching of vocational subjects at a particular high school in rural Cambodia. The purpose of the external evaluation was to know the status and level of the work of teachers in the teaching of vocational subjects through inspection activities. It can be concluded for the eight assessed teachers of vocational subjects that the basic skills of the teacher are guaranteed, and it can be argued that the teachers achieve so-called pedagogical minimum for teaching. and the authors stress the significance of development cooperation projects.

Researchers from Daugavpils University basing on Ribot's studies carried out the study of ontogenetic tendencies of a development of creative imagination during times of Ribot and our peers. The modification of the test of Torrance took place and the results gained in the test were similar to the results gained in the test by Ribot. It was discovered that during the development of creative imagination there are two crises: during the age of 7-8 and during the age of 15-16. Results gained during this research leads to conclude there are two peaks in the development of an individual (at the age group of 11-12 and at the age of 30-40).

The study on student cooperatives in the 21st century reflects their role in education and upbringing, shaping entrepreneurial attitudes and values of work and democracy in Poland. The author in particular emphasizes the role of cooperatives in primary and secondary schools.

Articles on **life quality in the context of home environment, home economics, design and crafts** describe the topics: learning and feedback skills, sustainable education, interdisciplinary integration, lesson study approach, lifestyle peculiarities of students, nutrition education within family, learning tools for students with severe and profound intellectual and/or multiple disabilities.

The necessity for self-directed learning and feedback skills in development of students' learning is investigated. Using the lessons learned in pedagogical studies, it is substantiated that learning to learn is important both at home economics lessons and in other life situations.

There is much debate about the education for sustainable development. The teaching and learning process in handicraft lessons is being looked through the point of view of education for sustainable development. Handicraft obtain much higher value compared to industrially made mass production goods.

The Estonian national curriculum focuses on integrating the learning content and acquired skills into everyday life. Current craft has moved from preparing similar items towards a craft design process where all students have an individual relationship with their original work. Through the personalized work, it becomes possible to achieve both higher learning motivation and a multi-step self-reflection. Estonian craft teachers using teaching methods and didactic principles related to interdisciplinary integration are highly valued.

Lesson Study as an approach to improve classroom teaching that focuses on professional collaborative between teachers was investigated in Ireland. The teachers considered that the Lesson Study approach contributed very well to improve student outcomes. The active involvement of students in their own learning and in the planning and evaluation of teaching methods and classroom activities enhanced the process of improving pedagogic practice.

It is being solved the problem of learning tools for pupils with severe or profound intellectual and/or multiple disabilities in Estonia. It appeared that the existing learning tools cannot provide clear and strong stimuli for the pupil. In creating new learning tools in cooperation with designers, it should be taken into account that the product has to be of high quality and it has to consider the special characteristics of the cognitive processes and the underdeveloped motor skills of the pupils with severe or profound intellectual and/or multiple disabilities (SPIMD); it has to be universal, allowing adjustments according to individual special needs. Estonians used the User Experience Questionnaire (UEQ) as measuring instrument for evaluating interactive learning tools.

A study conducted at the University of Latvia confirms that lifestyle is an important factor which influence student's health, way of life and study results. Students usually have many home works, high mental load and sometimes - emotional strain. These circumstances influence students' lifestyle. At the same time lifestyle should be healthy and active, enough physical activities are necessary in order to maintain good physical fitness, health level and improve learning results.

Nutrition education in Poland provided within family can be significantly affected by tradition, including the various elements of cultural heritage such as traditional food, methods of its preparation, and finally eating habits. The changes in the food culture are quite slow, both in relation to methods of food preparation and type of food consumed, therefore, traditional patterns are preferred over innovations.

There will be poster presentation "Contemporary graphic design: concepts, examples and symbols" and "Different elements in creative works of design students". **Creative workshop for design students** is organized "Artistic photography aftertouch (processing with Adobe Photoshop) and colour correction".

Research articles of the section **Development of professional education and career** cover discussions on wide range of topics: thoughts and opinions of employees working in public sector on harmonization of organizational culture values and personal values, carers' reflections about a fulfilling work environment in a residential home, as well as reasons that stops long-term unemployed social benefits receivers from returning into labour market were analysed; the interrelation between organizational learning culture and organizational citizenship behaviour and the factor of finance and entrepreneurship

in terms of human capital development were investigated, assessment of selected opinions of agriculture students in the context of education for sustainable development in rural areas was described; the handicraft teachers' habits in choosing and using courses of continuing education, physical activity and life quality of part-time students and readiness for the professional development of medical practitioners in terms of distance learning were evaluated and development of career guidance models for young people was justified.

Investigation of agriculture students' opinions concerning their own motivation for implementing sustainable development allows to conclude that students are motivated to implement sustainable development and recognize information, knowledge, responsibility, self-knowledge, self-improvement and ecological culture as basis of sustainable development.

Distance learning provides various benefits, therefore the professional development in terms of distance learning would require more attention. Researchers conclude that medical practitioners have good technological skills and a high level of motivation to learn, time planning problems, and insufficient English language skills are noticed as major obstacles in distance learning.

Becoming a professional teacher is an everlasting process, therefore scientists try to find out the habits of handicraft teachers in choosing and using courses of continuing education. Results of research show that handicraft teachers' engagement in further training is mostly connected with developing their practical skills rather than acquire didactic knowledge.

The part of society remains unemployed for very long period where it is possible to find a job and be employed constantly. The analysis of the reasons that stops them from returning into labour market shows that living on social benefits is promoted by inadequate self-esteem and inadequate wishes about the job and salary.

In turn many secondary school students show inability to make decisions on their future, therefore two career guidance models were developed and approved. Researchers report that expert evaluations of models and approbation in schools were successful, exploitation of developed models would contribute to the purposeful, conscious and independent career decisions of youth.

In the era of rapid changes, interrelation between organizational learning culture (OLC) and organizational citizenship behaviour (OCB) of employees has significant impact on productivity and profitability, the increasing of consistency and conformity of personal values and values of the organization allow to increase employees' acceptance of organizational values. Researchers conclude that the employers should look for ways of improving the OCB of their workers.

Researchers pay close attention on the formation of human capital in the formal education and offer an original model of support of financial literacy and leadership for entrepreneurship. The results of empirical study show that the integrated forms of teaching (e.g., the Practice Enterprises) contribute to the formation and development of human capital and create prerequisites for informal learning, entrepreneurship and a high level of financial literacy.

Qualitative research on carers' reflections about a fulfilling work environment was done in a residential home and motivating factors and the reasons that carers choose to work in it were found out. Most significant of them are connected to the people that carers are working with and process of learning and trying to improve oneself in the work environment and seeking to help clients is important as well.

Physical activities are basis for keeping health capacity, working ability, developing business and carrier. Unfortunately, general physical activity level of part time students was low for female and moderate for male; a significant proportion of students didn't get adequate physical activity and that the number of individuals of both genders who have no any sports activity in the last years increased.

Teachers, lecturers, professors, masters and doctoral students have covered a wide range of themes providing diversity and topicality of the conference.

Many thanks to the chiefs of all conference sections. During the conference the first section is divided in two parts and I would like to say thanks to the chiefs of both subsections L. Simane-Vigante (1<sup>st</sup> section), I. Katane (1<sup>st</sup> section) and to the chiefs of other sections B. Briede (2<sup>nd</sup> section), I. Lice-Zikmane and K. Turkki (3<sup>rd</sup> section) and J. Pavulens (4<sup>th</sup> section) for organization and management of section effective work and for given contribution for preparation the descriptions for the foreword.

I would like to say many thanks to all authors, reviewers and organizers for their contribution in international scientific level.

On behalf of the Conference Organizing Committee  
Associate professor Vija Dislere  
Institute of Education and Home Economics  
of the Faculty of Engineering,  
Latvia University of Life Sciences and Technologies

# **Problems and solutions for nowadays school, university and adult education**



## An Innovative Method for Data Mining in Higher Education

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**Abstract:** Efficiency of process remains the key issue in higher education. Process efficiency is closely connected with data mining as data mining supports decision making in higher education. Development of Information and Communication Technology (ICT) has promoted the emergence of large data sets or, in other words, big data in all the areas of higher education. The aims of the research are to analyse scientific literature on innovative methods for data mining in higher education as well as to highlight advantages of the innovative method for data mining in higher education through the comparison with other methods for data mining. The methodology of the present research is built on the inter-related steps following a logical chain: analysis of scientific literature on innovative methods for data mining in higher education → comparison of innovative methods for data mining in higher education with other methods of data mining → advantages of the innovative method for data mining in higher education → conclusions. Exploratory research was employed in the present investigation. Exploratory research is aimed at generating new research questions. Interpretive paradigm was applied to the analysis. The analysis of scientific literature reveals the theoretical inter-connections between data analysis, data analytics, data mining, burstiness and gap processes. Burst detection method based on gap processes is identified as an innovative method for data mining in higher education. Such advantages of the innovative method, namely burst detection method base on gap processes, for data mining in higher education are disclosed: a realistic evaluation of burstiness in a process, and a given precision in analysing burstiness parameters/variables such as probability and concentration. Application of the burst detection method base on gap processes for data mining in higher education supports decision making for increasing efficiency in such processes of higher education as predicting student performance, planning and scheduling, enrolment management, target marketing, management and generation of strategic information, students' selection of courses, measurement of students' retention rate, grant fund management of an institution, optimization of study processes. Directions of further research are proposed.

**Keywords:** higher education, big data, data analytics, data mining, burst detection.

### Introduction

Efficiency of process remains the key issue in many if not in all the life fields such as business, industry, medicine, and education that includes higher education, too. Process efficiency is closely connected with data mining as data mining supports decision making in a variety of processes including processes in higher education.

Development of Information and Communication Technologies (ICT) has promoted the emergence of large data sets or, in other words, big data in all the areas of our life including higher education as shown in Figure 1.

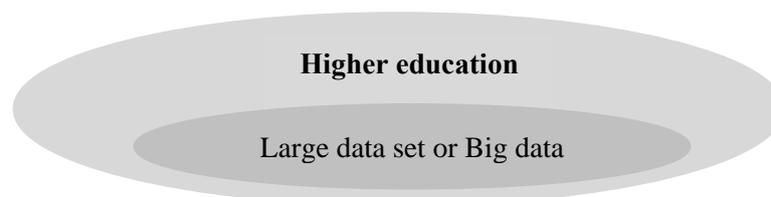


Figure 1. The relationship between higher education and large data sets.

The proliferation, ubiquity and increasing power of computer technology has dramatically increased data collection, storage, and manipulation ability. Data sets have grown in size and complexity, too (Dermino, Fortingo, 2015).

Big data serves as support in decision making for increasing efficiency of higher education in such areas as data analysis and visualisation, predicting student performance, student observation, educator observation, student grouping, planning and scheduling, enrolment management, target marketing, management and generation of strategic information, students' life cycle management, students' selection of courses, measurement of students' retention rate and the grant fund management of an institution (Goyal, Vohra, 2012, 116-119), re-structuring higher education institution, optimization of study processes (Ahrens et al., 2016a), and reforming of higher education system.

In order to enable holistic contextual decisions in higher education, data analytics and data analysis have to be carried out. It should be noted that data analysis is considered to be a human being activity or, in other words, direct "hands-on". In turn, data analytics is identified as a mechanical or algorithmic process or, in other words, indirect, automated data processing (Dermino, Fortingo, 2015). Data analytics in general and big data analytics in particular driven by data mining (Apte, 2011). Figure 2 reveals the relationship between data analysis, data analytics and data mining.

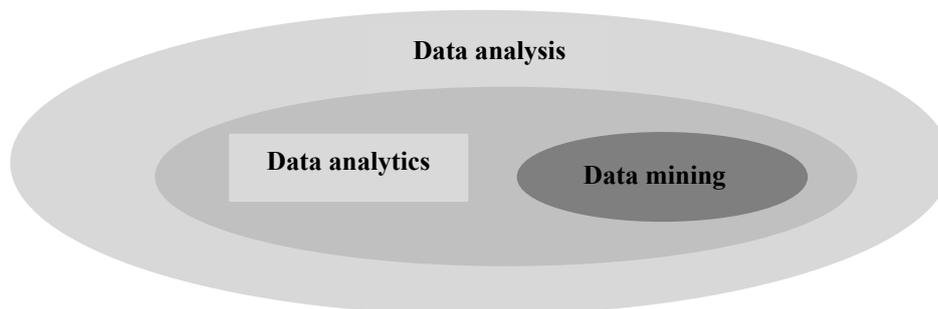


Figure 2. The relationship between data analysis, data analytics and data mining.

Data mining serves as a tool:

- on the one hand, to designate the tendency in the field of investigation (Pierrehumbert, 2012),
- on the other hand, to assist in discovering new patterns from large data sets according to different perspectives for categorization.

Data mining or, in other words, automated detection has been already aided by other discoveries in computer science, such as neural networks, cluster analysis, genetic algorithms (1950s), decision trees and decision rules (1960s), and support vector machines (1990s) (Dermino, Fortingo, 2015). However, effective methods and approaches for automated detection are still an open research area that is constantly being developed.

**The aims of the research** are to analyse scientific literature on innovative methods for data mining in higher education as well as to highlight advantages of the innovative method for data mining in higher education through the comparison with other methods of data mining underpinning elaboration of a new research question on efficient application of the innovative method for data mining in higher education.

The guiding **research questions** are as following:

- what is an innovative method for data mining in higher education;
- what are advantages of an innovative method for data mining in higher education?

## Methodology

The methodology of the present research is built on the inter-related steps following a logical chain: analysis of scientific literature on innovative methods for data mining in higher education → comparison of the innovative method for data mining in higher education with other methods for data mining → outline of the advantages of the innovative method for data mining in higher education → conclusions. Exploratory research was employed in the present investigation. Exploratory research is aimed at generating new research questions (Phillips, 2006).

The exploratory methodology proceeds (Melnikova, Zascierinska, Glonina, 2015):

- from exploration in Phase 1;
- through analysis in Phase 2;
- to generating a new research question in Phase 3.

The interpretive paradigm was applied to the investigation. The interpretive paradigm aims to understand other cultures, or, in other words, other scientific disciplines, and establishment of ethically sound relationships (Taylor, Medina, 2011). Interpretative paradigm is characterized by the researcher's practical interest in the research question (Cohen, Manion, Morrision, 2005). The researcher is the interpreter.

## Results and Discussion

Analysis of scientific literature allows drawing up a conclusion that burst detection method as a method for automated detection has recently attracted a lot of research interests in a variety of research fields such as text stream (Kalogeratos, Zagorisios, Likas, 2016), reviews for review spammer detection (Fei et al., 2013), e-business (Ahrens, Zascersinska, 2017). Intense research activities on burst patterns were carried out (Subasic, Berendt, 2010). In higher education, the research efforts in applying burst detection method focused on practical use of the model for simulation of study process optimization in rural areas (Ahrens et al., 2016a). The model was built on the bursty nature of students (Ahrens et al., 2016a). Burst means sudden concentration in time periods (Fei et al., 2013). The burst detection method exploits the bursty nature of a phenomenon (Fei et al., 2013). Phenomenon's burstiness is revealed as phenomenon's frequency at an unusual high rate (Kalogeratos, Zagorisios, Likas, 2016).

Interval of high-activity alternating with long low-activity periods can be found in many areas of our daily life. Table 1 reflects the phenomenon of burstiness in a range of scientific fields (Ahrens, Zascersinska, 2016) as part of our daily life.

Table 1

**Burstiness in different scientific fields**

Scientific field	Phenomenon of burstiness
Telecommunications	Burstiness of bit-errors in data transmission.
Economics	Burstiness of crises.
Natural sciences	Burstiness of disasters, earthquakes.
Logistics	Burstiness of traffic.
Social media	Burstiness of hot topic, keyword, event.
Business	Burstiness of workload.
E-Business	Burstiness of buyers.

A classic example is the distribution of bit-errors in telecommunication systems. Here, intervals with low bit-errors are surrounded by intervals with high number of bit-errors. Beginning in the 1960s E.N. Gilbert presented the first model in telecommunications which emphasized that bit errors occurred in bundles or, in other words, bursts (Gilbert, 1960; Elliott, 1963). This work has later been extended by H. Wilhelm who introduced some closed form solutions for describing the bit-error distributions in wireless communication channels such as the short-wave transmission channel (Wilhelm, 1976) by introducing regenerative model approaches. These investigations were encouraged by practical measurement campaigns in the sixties and seventies. H. Wilhelm introduced already at that time simulation models such as the L-model or the A-model which took the effect of burstiness into consideration. He recognized that the bit error probability (also sometimes referred as bit error rate) is not sufficient to describe the effect of burstiness in wireless communication. Instead he defined solutions which take burstiness into account by defining models with two input parameters such as the bit error rate and the error concentration value.

H. Wilhelm mapped the process of bit errors in telecommunication systems onto processes defined by gaps between two consecutive bit errors. Since the gap-length undergoes some variations, the statistical description requires appropriate probability distribution functions. By defining a gap-distribution function (defined as the probability that a gap between two bits is larger than  $k$  bits) or a gap-density function (defined as the probability that a gap between two bits equals  $k$  bits) he could find some closed form solutions. The model characteristic has later been extended by A. Ahrens (Ahrens, 2000). Supported by practical measurements, these models make use of the assumption that the block error rate (i.e. a block with at least one-bit error) can be described as a function of the bit-error probability and the

block length. In the double-logarithmic scale the linearity between the block error rate and the block length is used to define the simulation model characteristic as well as is used to define the inherent concentration between consecutive bit-errors. The model characteristic is proved by many measurements campaigns.

Digital simulation models such as the beforehand mentioned models for describing burstiness in wireless transmission systems are an important prerequisite for optimizing the underlying components for data transmission such as transmitting or receiving algorithms. Such simulation models have been heavily used for optimizing of coding schemes. So was the probability of undetected errors for shortened Hamming codes investigated by C. Lange and A. Ahrens (Lange, Ahrens, 2001) on bursty channels. Another example showing the importance of such simulation models is the modelling of connection arrivals in Ethernet-based data networks (Kessler et al., 2003), where the intervals between consecutive data packets were analysed in a data network.

Thus, burst detection method based on gap processes is identified as an innovative method for data mining. Table 2 demonstrates models or, in other words, methods, for evaluation of burstiness in a number of scientific fields.

Table 2

**Comparison of models for evaluation of burstiness in a number of scientific disciplines**

Model's element	Scientific fields			
	Social media	Reviews	Text stream	Higher education
Criteria	Burstiness of hot topic, keyword in a sequence of batched georeferenced documents	Reviewers' co-occurrence in bursts	Term burstiness and co-burstiness	Students' burstiness
Indicators	Locality	Smoothness	Frequency	Students' probability
		Continuity		Students' concentration
Feature	Sequence of batched geo-referenced documents	Individual reviewer behavioural features	Consecutive batches of documents	Sequential independence of gaps between two students or sequentially independent gaps of length $k$ between the individual students
Methodological background	J. Kleinberg's burst detection algorithm, which is based on a queuing theory for detecting bursty network traffic	Kernel Density Estimation (KDE) techniques	Two-state automaton by J. Kleinberg (Kleinberg, 2003)	Gap distribution function within a sequence of the disturbed and interrupted transmission intervals

For comparison purposes, the criterion and indicator of analysis of burstiness of hot topic, keyword, event in a sequence of batched georeferenced documents in social media is developed by a group of Japanese researchers as geo-annotated user-generated data on social media sites is becoming one of the most influential sources of information (Kotozaki, Tamura, Kitakami, 2015). This group of Japanese researchers built their model of evaluation of burstiness of hot topic, keyword in a sequence of batched georeferenced documents on Kleinberg's burst detection algorithm, which is based on a queuing theory for detecting bursty network traffic (Kotozaki, Tamura, Kitakami, 2015).

Another research group involved researchers from the USA. The research group proposed such a method as relationships among reviewers by linking reviewers in a burst (Fei et al., 2013, 176). The method focuses on individual reviewer behavioural features. Such properties or criteria as smoothness and

continuity are desirable properties for review burst detection in a product (Fei et al., 2013, 176). The method for burst detection employs Kernel Density Estimation (KDE) techniques.

An international research group from France and Greece emphasized term burstiness and co-burstiness for the improvement of text streams clustering (Kalogeratos, Zagorisios, Likas, 2016). Frequency is considered as the indicator within consecutive batches of documents. The methodological background of the method for the improvement of text streams clustering is based on two-state automaton by Kleinberg (Kleinberg, 2003).

The comparative analysis, reflected in Table 1, of the methods, namely the model of evaluation of burstiness of hot topic, keyword in social media shown by the group of Japanese researchers (Kotozaki, Tamura, Kitakami, 2015), reviewers' co-occurrence in bursts revealed by the of researchers from the USA (Fei et al., 2013), term burstiness and co-burstiness disclosed by the international research group from France and Greece (Kalogeratos, Zagorisios, Likas, 2016) and the model for evaluation of students' burstiness in study process (Ahrens et al., 2016a), was grounded on the comparison of the models' elements such as:

- criteria,
- indicators,
- feature,
- methodological background.

The comparative analysis allows identifying burst detection method based on gap processes to be an innovative model or, in other words, method for data mining in higher education. The model is mathematical, namely ( $Y \equiv u(k)$ ) (Ahrens et al., 2016a). The model is applicable within the binary option paradigm: "to be, or not to be" formulated already in 1603 by William Shakespeare in his play *Hamlet* (Shakespeare, 1603). The model is based on gap processes. Gap in the present contribution means a process ends without an outcome (Ahrens et al., 2015). The analysis assists in concluding that a process is characterized by sequential independence of gaps between two phenomena (Ahrens, Zascierinska, 2016). Criteria for process optimization were defined as probability and concentration (Ahrens et al., 2016a). Further on, the levels of burstiness (Ahrens et al., 2016b) are summarized in Table 3.

Table 3

Levels of burstiness

Characteristics	Levels				
	L1	L2	L3	L4	L5
	Very low	Low	Average	High	Very high
Probability $p_e$	0.0 – 0.10	0.11 – 0.39	0.41 – 0.59	0.60 – 0.79	0.80 – 1.0
Concentration $(1 - \alpha)$					

In order to outline advantages of the innovative method for data mining, a comparative analysis of other methods that take phenomenon's burstiness into account is to be carried out. However, many researchers highlight that there is a lack of common procedures that makes it impossible to compare methods in a principled way (Subasic, Berendt, 2010).

By advantages, any trait, feature or aspect that gives an individual, entity or any other thing a more favourable opportunity for success are identified (Melnikova et al., 2017). Advantages are outlined through structuring and summarizing content analysis (Mayring, 2014).

Structuring and summarizing content analysis (Mayring, 2014) allows highlighting such advantages of the innovative method, namely burst detection method based on gap processes, for data mining in higher education:

- a realistic evaluation of burstiness in study process;
- a given precision in analysing burstiness parameters/variables such as:
  - probability,
  - concentration.

## Conclusions

The analysis of scientific literature assists in revealing the theoretical inter-connections between data analysis, data analytics, data mining, burstiness and gap processes. In scientific literature burst detection method is identified as an innovative method for data mining in general and in higher education in particular. The innovative method, namely burst detection method, for data mining in higher education is based on gap processes. Phenomenon's probability and concentration are the indicators for analysing burstiness in a variety of processes including processes in higher education. Structuring and summarizing content analysis within the comparative analysis of burst detection methods applied to social media, reviews, text stream and higher education facilitated the outline of such advantages of the innovative method, namely burst detection method based on gap processes, for data mining in higher education as:

- a realistic evaluation of burstiness in a process;
- a given precision in analysing burstiness parameters/variables such as:
  - probability,
  - concentration.

Application of the innovative method, namely burst detection method based on gap processes, for data mining in higher education supports decision making for increasing efficiency of higher education in such areas as data analysis and visualisation, predicting student performance, student observation, educator observation, student grouping, planning and scheduling, enrolment management, target marketing, management and generation of strategic information, students' life cycle management, students' selection of courses, measurement of students' retention rate and the grant fund management of an institution, re-structuring higher education institution, optimization of study processes, and reforming of higher education system.

The new research question is put forward: What are conditions for efficient application of the innovative method for data mining in higher education?

The present research has limitations. The inter-connections between data analysis, data analytics, data mining and burstiness have been set. The study is also limited by the implementation of the analysis of scientific literature only. Another limitation is only a few publications on methods for data mining in higher education. Therein, the results of the research cannot be representative for the whole area. Nevertheless, the results of the research, namely the advantages of the innovative method for data mining in higher education, may be used as a basis of analysis of a variety of processes in higher education such as study process, management process and teaching process. If the results of other researches had been available for analysis, different results could have been attained. There is a possibility to continue the study.

Further research tends to facilitate the practical applications of the innovative method, namely burst detection method based on gap processes, for data mining in higher education. Interdisciplinary research could enhance relevant tools and techniques of the innovative method, namely burst detection method based on gap processes, for data mining in higher education. Analysis of disadvantages of the innovative method, namely burst detection method based on gap processes, for data mining in higher education is proposed, too. Further research tends to disclose recommendations on practical application of the innovative method, namely burst detection method based on gap processes, for data mining in higher education. A comparative research on methods as well as their tools and techniques for data mining in higher education could be carried out, too.

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## Interdisciplinary Education in Multicultural Environment

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**Abstract:** Globalization as well as social, economic and political processes in the world affect each individual separately and the society on the whole. Due to changes taking place in the contemporary world more and more attention is paid to multiculturalism. School as a model of a multicultural world can promote people's awareness of what multiculturalism means, what benefits and challenges it brings to people, what knowledge, skills and behaviour are needed for life in a modern multicultural society. Interdisciplinary education is one of the possible ways how the young generation can acquire knowledge and skills necessary for life in the multicultural society of the 21<sup>st</sup> century to be able to solve the diverse problems, to seek answers to the real-life issues. Thus, the aim of the paper is to analyse the experience of interdisciplinary education in the basic education curricula implemented in the multicultural environment of Latvia.

**Keywords:** interdisciplinary education, multicultural environment, curriculum, school education.

### Introduction

The modern world changes rapidly due to the globalization processes; the knowledge broadens and is integrated. Undoubtedly, this affects the content of education and the choice of teaching/learning methods in the pedagogical process of school. It is no longer the external world that enters the school but the school itself goes out into the surrounding world that requires a broader view on the situations, processes and phenomena. We understand that the most pressing issues of our time, from climate change to mass migration, from global health to the digital revolution, cannot be fully addressed through a single disciplinary or cultural perspective. We must bring together insights from the natural and social sciences, the arts, engineering and humanities to produce explanations, create products, ask new questions, and find solutions to these contemporary issues. We must re-orient from the offer of mono, separate disciplines to the solution of the current issues and problems existing in the modern surrounding environment that demands the combining and integrating the knowledge and skills acquired in different school subjects. Besides, none of the subjects is given the priority and owing to the interdisciplinarity and emphasising the common in the content of different school subjects the possibilities are sought, thus helping learners to see in a natural way the connection between the everyday events and phenomena with the material included in the school textbooks.

The interdisciplinary approach is a key concept to the advancement of school curriculum at all levels. It is now debated whether an interdisciplinary approach is the best course for the curriculum (Jones, 2009). Interdisciplinary education is implemented in the school environment that is becoming more and more multicultural. The rapid migration processes promote the enrichment of the multicultural environment in the world, including Latvia. The children of not only the historically traditional cultures but also children representing the cultures of the new arrivals sit next to each other in the classes. However, the children of the different cultures have to explore and solve similar problems and issues of the surrounding world.

Thus, *the aim of the paper* is to analyse the experience of interdisciplinary education in the basic education curricula implemented in the multicultural environment of Latvia.

### Methodology

The theoretical basis of the research consists of analysis of literature about: 1) *interdisciplinary educational process* (Boix-Mansilla, 2010; Duerr, 2008; Letterman, Dugan, 2004; Fox, Baloy, Sens, 2014; Jones, 2009; Kidron, Kali, 2015; Knotts et al., 2009; Matsagouras, 2004; Smith, McCann, 2001; Vasiliki, Panagiota, Stavrakouli, 2016); 2) *multicultural environment* (Connerley, Pedersen, 2005; Cooper, 2003; Gordina, 2015; Holloway, Green, Livingstone, 2013; Kokemuller, 2016; Lombardo, 2016; Spanhel, 1999; Thompson, Di Tomaso, 1988). Research is based on theoretical methods. Methods include analysis of scientific literature and resources, as well as documents. Therefore, there was carried out research, analysing basic education curricula, stating whether at all or in what way there are included issues of interdisciplinary education in multicultural environment.

## Results and Discussion

### *Interdisciplinary education*

The term refers to the teaching principle that seeks the approach of school knowledge through the global study and process of issues. Interdisciplinarity, at first, starts on the level of scientific research and then it extends to the field of education (Matsagouras, 2004; Vasiliki, Panagiota, Stavrakouli, 2016). The priority that is given to review of important issues for learners and the investigative processing of issues makes the interdisciplinary approach pupil-centred both in terms of concept and methodological approach (Matsagouras, 2003; Vasiliki, Panagiota, Stavrakouli, 2016). The interdisciplinary approach allows pupils becoming more involved in their learning and teachers can work toward eliminating discipline lines. Pupils can become independent, confident individuals who “learn how to learn” and develop lifelong learning skills (Duerr, 2008; Jones, 2009).

Interdisciplinary education is characterised as the process in which pupils integrate information, methods, tools, perspectives, possibilities, ideas, concepts and theories from two or more fields in order to create “products”, explain the phenomenon or solve problems. Pupils are not able to do it using the means of only one field, such as information, methods, tools, ideas and concepts (Boix-Mansilla, 2010). In interdisciplinary pedagogical process, the problem questions are discerned, the most appropriate ways of problem solution are applied, the approbation of the obtained results is implemented as well as the process of problem question solution results in formulating and analysing what new knowledge and skills have been acquired, what skills and knowledge have been improved, what the contribution to the development of other pupils is. The development of understanding of interdisciplinary teaching/learning of the learning content is determined by such a learning process through which a pupil integrates his/her views and ways of thinking from various fields, facilitating thematic understanding of a particular field (Kidron, Kali, 2015).

The benefits of interdisciplinary teaching and learning are well established (Fox, Baloy, Sens, 2014; Knotts et al., 2009; Letterman, Dugan, 2004; Smith, McCann, 2001). The interdisciplinary approach has many advantages such as expanding pupils’ understanding and achievement between all disciplines and enhancing their communication skills. Interdisciplinarity is not only important for the pupil to learn any one single discipline or solve the problem in a synthesized manner, but it also enriches the pupil’s lifelong learning habits, academic skills, and personal growth (Jones, 2009). This kind of education aims to develop boundary-crossing skills. Boundary-crossing skills are, for instance, the ability to change perspectives, to synthesize knowledge of different disciplines, and to cope with the complexity (Spelt et al., 2009).

In order to implement the interdisciplinary education, the transversal skills have to be developed first of all as they help to see further the synthesis of the knowledge and skills of different school subjects in the pedagogical process. This is envisaged in the new project devoted to the development of the new teaching/learning content *Skola 2030 (School 2030)* which anticipates focussing on the following transversal skills in the curriculum: self-cognition and self-management; thinking and creativity; cooperation and participation; digital literacy (Skola 2030..., 2017). The project webpage gives the quotation of A. Schleicher, the head of the OECD Education and skills directorate, that “Nowadays the aim of the school is to develop pupils’ ability to learn all through one’s life, to think and act in complex situations, to live in the diverse world as an active and responsible citizen. The key of success of the school graduate is not the volume of his/her knowledge but what he/she is able to do with this knowledge.” Thus, the focus is on the development of pupil’s competences the basis of which is interdisciplinary education. Competences envisage the application of knowledge in diverse situations that are included in integrated programmes because they, in fact, are interdisciplinary and prepare pupils for lifelong learning (Lake, 1994).

The primary goal in the interdisciplinary approach is the inquiry skills. The nature of that inquiry varies and includes hands-on problem-solving activities, the inquiry into a social era or topic, or the inquiry into a theme or issue. On the other hand, it is the similarity in objective, such as cultural awareness, critical thinking, and informed decision making that typically binds the language arts and social science (Farivar, 1993; Mathison, Freeman, 1994; Norton, 1988). Both contexts seek to emulate the real world while providing pupils with an arena for problem solving and decision-making activities (Mathison, Freeman, 1994).

Thus, interdisciplinary education is implemented also through inquiry-based activities and the solution of problem situations in the current separate subject curricula. The knowledge and skills acquired in

several school subjects as well as transversal skills that become more and more topical are applied in the inquiry and the solution of problem situations if we think about a complex use of the knowledge and skills acquired during the schooling in the life-long and life-broad learning in the society of today and future that is characterised by ethnic and cultural diversity.

### ***Multicultural environment***

Multiculturalism is the reality of today's world – migration processes have touched the society of all countries. It means that different ethnic and racial groups having a different history, language, culture and religious belonging have to coexist in the political boundaries of countries. Nowadays we have to be aware of the turbulent political transformation processes – the British political adviser Robert Cooper admits that “boarders are increasingly irrelevant for postmodern states. Thanks to the missile, the motor car and the satellite, this is a fact of life in the twenty-first century” (Cooper, 2003, 3).

There is still no unified position in using the notion “multicultural”. Analysing different publications (Connerley, Pedersen, 2005; Kokemuller, 2016; Thompson, Di Tomaso, 1988) in the context of the multicultural environment different notions relating to the multicultural environment can be found in several sources, for instance: intercultural interaction- in culture, globalization – in politics and economics, diversity – in pedagogy, multicultural workforce – in career management.

The multicultural environment is used speaking both in the aspect of genders, races, religious belonging and cultural differences. Multiculturalism is often described as the notion of diversity. Diversity, according to the definition, concentrates on the different while multiculturalism is more concentrated on the concrete features of different cultures. The discussion about the “correct” definition is still topical. Several researchers (Connerley, Pedersen, 2005; Cox, 1994; Rijsman, 1997) defend the definition of diversity that is based on the inequality of powers, for example, race and gender. T.H. Cox (1994) defines the cultural diversity as the reflection of differences of different population groups in one social system.

The multicultural perspective tries to secure a conceptual framework that separates and singles out the complex process of the diversity which dominates in the society and at the same time ensures the uniformity and cooperation uniting the culturally different people. During the last 20 years multiculturalism is recognized as a powerful tool not only for understanding the groups of unknown people but also for understanding oneself and those with whom we live and work together (Kokemuller, 2016; Lombardo, 2016). Multiculturalism is a transdisciplinary conception that became possible only in the definite social and anthropological context when a relatively broad interdisciplinary conceptual arsenal has already been created in the science and about which the more educated part of the society has been rather well-informed. Besides, there is an accelerated development of science and technologies, the transition from the industrial society to the information society and a rapid use of information technologies in all spheres of life starting already with the childhood. The technology user in the society of wellbeing in the first decade of the 21<sup>st</sup> century was on average 6-13 years old but in the second decade we are talking already about the digital literacy of 3-4 years young children. (Holloway, Green, Livingstone, 2013; Spanhel, 1999). It deepens and broadens the multicultural environment.

When a society is diverse, it will only stay together as long as its citizens value deep diversity in itself (Gutman, 2003; Fraser, Honneth, 2003; Kymlicka, 2001).

Integrating more and more in the European Union and strengthening the cooperation with other countries leads also to the increase of ethnic diversity in Latvia. According to the data of the Central Statistical Bureau of Latvia the population of Latvia at the beginning of 2017 was 1 950 116, including 85.7 % citizens of Latvia, 11.4 % non-citizens of Latvia and approx. 2.9 % people with permanent or temporary residence permits or foreigners (Resident population by citizenship..., 2017). The data of the Central Statistics Bureau, in their turn, reflect the ethnic composition of Latvia's population (Figure 1).

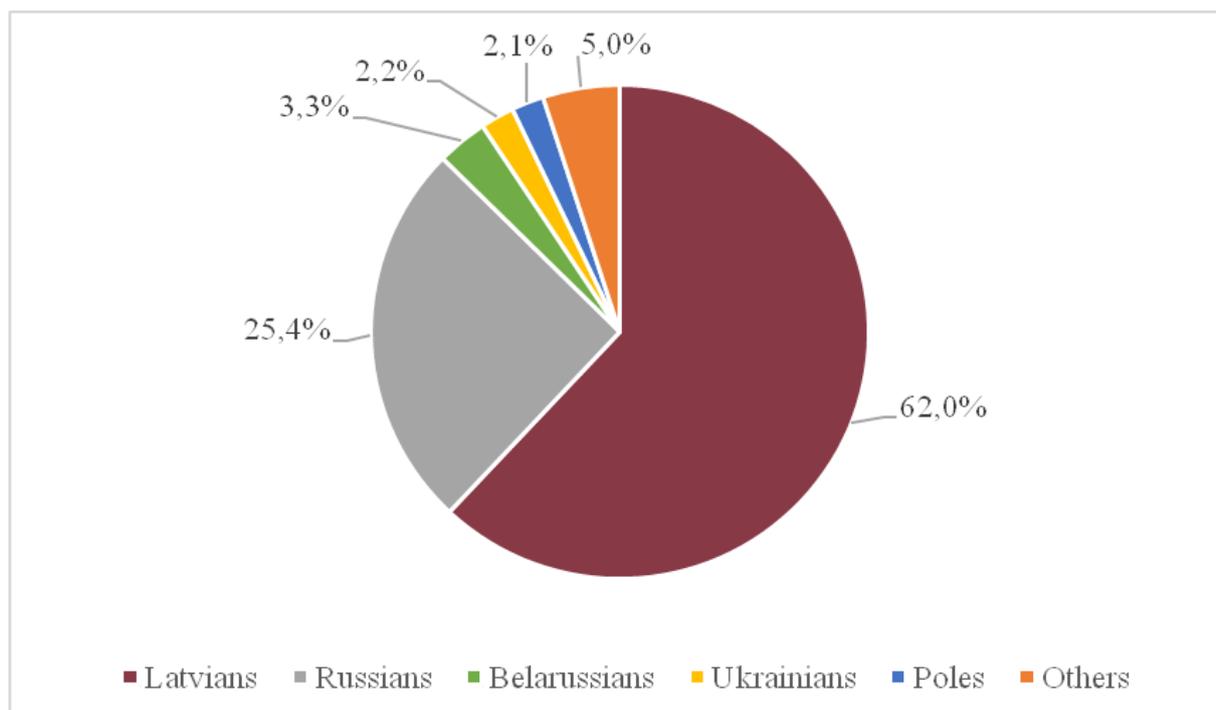


Figure 1. The ethnic composition of Latvia's population at the beginning of 2017 (in percentage)  
(Resident population by ethnicity..., 2017).

Part of this population attends education institutions of different types, including general comprehensive schools thus forming the multicultural environment in them. The study performed by M. Gordina (Gordina, 2015) indicates that a bit more than a half of Latvia's young people (54.2 %) are aware of belonging to their culture and its differences from other cultures. Half of the youth (52.6 %) have no prejudices towards the representatives of another religion or race, which means, that the skin colour and religion of other people is not an obstacle for them for the cooperation. Pupils at school in their classes cooperate when exploring, seeking the solutions to the problem situations, discussing, analysing the phenomena and processes in the surrounding environment and the world.

### ***The experience of interdisciplinary education in the basic education curricula implemented in the multicultural environment of Latvia***

In order to study the experience of interdisciplinary education in the basic education curricula that are implemented in the multicultural environment of Latvia the expected learning outcomes at the end of Grade 9 of four basic education curricula that are presented in the webpage of the State Education Centre were analysed. The curricula were chosen from different content areas: from *Technology and science* area – biology and geography curricula, from *Man and society* area – history of the world, from *Arts* area – the literature curriculum. It was found out whether these curricula have planned such learning outcomes that anticipate the solution of problem situations and inquiry-based activities which needs the integration of the knowledge and skills of two or more school subjects that is characteristic of interdisciplinary education. Besides, the school subjects chosen for the study are important in the aspect of multicultural environment where the diversity of cultures in the society and the education environment enrich the content of learning and the pupils' learning experience.

It is possible to conclude that interdisciplinary education in these curricula is implemented only partly. Interdisciplinary education is evident in the expected learning outcomes that envisage the acquisition of inquiry skills and skills of solving the problem situations. However, they do not emphasize the application of knowledge and skills acquired in other school subjects. This can be foreseen only from the context. The presence of interdisciplinary education is most observed in the ***curricula of biology and geography***, which also include the integration of the knowledge of mathematics, history, social sciences, ethics, IC technologies (computers). Equal attention is paid to inquiry-based activities and solutions of problem situations. The context allows concluding that pupils also use their own experience that they have developed in the multicultural environment of the modern society (Table 1).

It is surprising that interdisciplinary education is little evident in the *literature curriculum*. It can be seen in the integration of knowledge and skills acquired in such subjects as history, social sciences, IC technologies (computers). However, the inquiry-based activities and solutions of problem situations are included in the expected learning outcomes comparatively less than in the curricula of other analysed subjects. Pupils' multicultural experience is little used here. But it is exactly this experience that enriches interdisciplinary education.

Table 1

**Analysis of the planned learning outcomes of the curricula in the view of interdisciplinary education**

Curriculum	Inquiry-based activity	Solutions of problem situations
Biology Grade 9	<p>Obtain information from reference sources (books, handbooks, encyclopaedias, journals, newspapers, information booklets), specific sources of information (advertisements, TV commercials, food labels).</p> <p>Summarize, arrange the obtained data in tables and graphs.</p> <p>Assess the credibility of data, their correspondence to sources of literature, to data obtained by other pupils.</p> <p>Explain the differences.</p> <p>Interpret and explain the obtained results, formulate conclusions and predict further application of the obtained results. Observe the rules of good performance/presentation.</p>	<p>Form the understanding about the importance of a healthy lifestyle in human life.</p> <p>Assess the domestic risk situations (traumas, poisoning, and intoxication).</p> <p>Choose season-appropriate clothes.</p> <p>Assess the risk situations and act accordingly in extreme conditions.</p> <p>Are aware of the necessity of biology knowledge and skills in everyday life, basic health support and continuation of education.</p>
Geography Grade 9	<p>Explore which the sources of water pollution of lakes, rivers and other water bodies in the local vicinity are and take care of their protection.</p> <p>Are able to perform independently observations in nature and make descriptions about nature and culturally historical objects.</p>	<p>Using the statistics, analyse the level of unemployment in regions, towns and cities of Latvia.</p> <p>Analyse the causes and problems of people's migration in the territory of the country and are aware of the problems related to it.</p> <p>Analyse the main nature protection problems in places of extraction mineral deposits.</p> <p>Assess the construction of new industrial enterprises in Latvia giving examples, are aware of factors influencing their construction.</p> <p>Assess the construction of the international main road Via Baltica and are aware of its importance in the international relations.</p>

Curriculum	Inquiry-based activity	Solutions of problem situations
<p style="text-align: center;"><b>Geography Grade 9</b></p>	<p>Explore which the sources of water pollution of lakes, rivers and other water bodies in the local vicinity are and take care of their protection.</p> <p>Are able to perform independently observations in nature and make descriptions about nature and culturally historical objects.</p>	<p>Using the statistics, analyse the level of unemployment in regions, towns and cities of Latvia.</p> <p>Analyse the causes and problems of people's migration in the territory of the country and are aware of the problems related to it.</p> <p>Analyse the main nature protection problems in places of extraction mineral deposits.</p> <p>Assess the construction of new industrial enterprises in Latvia giving examples, are aware of factors influencing their construction.</p> <p>Assess the construction of the international main road Via Baltica and are aware of its importance in the international relations.</p>
<p style="text-align: center;"><b>Literature Grade 9</b></p>	<p>Form the research skills, work out the assessment criteria of the research work, and assess one's own work and work done by others.</p> <p>Uses purposefully the traditional electronic, audio visual sources of information to perform the research work.</p>	<p>Express attitude to the issues included in the literary work, compare it with one's own life experience.</p> <p>Analyse the cultural historical facts included in the literary works and the link of the literary work with the time of its writing and the author's personality.</p>

More attention to the solution of problem situations is paid in the *History of the world* subject; it develops critical thinking and decision-making skills on the basis of the knowledge acquired also in other subjects – geography, biology social sciences, ethics, IC technologies (computers). Here pupils have to use their experience that has developed in the multicultural environment of the society. The analysis of this experience enriches interdisciplinary education, forms a broad general world outlook and leads pupils into the life-long and life-broad learning process.

## Conclusions

The multicultural environment of each country that has developed historically now has changed under the influence of the globalization processes in the world. Researchers are more and more speaking about multiculturalism, multicultural education that facilitates successful inclusion of every individual in the globalized society.

School as a model of a multicultural world can promote people's awareness to multiculturalism. The interdisciplinary approach is a key concept to the advancement of school curriculum at all levels. Interdisciplinarity starts on the level of scientific research and then it extends to the field of education. Interdisciplinary education is characterised as the process in which pupils integrate information, methods, tools, perspectives, possibilities, ideas, concepts and theories from two or more fields in order to create "products", explain the phenomenon or solve problems. Interdisciplinary education is implemented also through inquiry-based activities and the solution of problem situations in the current separate subject curricula.

The analysis of the expected learning outcomes of four basic education subject curricula in Grade 9 (biology, geography, history of the world, literature) showed that interdisciplinary education is implemented only partly. It is most broadly and diversely implemented through inquiry-based activities and solution of

problem situations in biology and geography school subjects but little in literature. Pupils are encouraged to use also their own experience when seeking solutions to problem situations in the History of the world.

The knowledge and skills acquired in several school subjects as well as transversal skills that become more and more topical are applied in the inquiry and the solution of problem situations if we think about a complex use of the knowledge and skills acquired during the schooling in the life-long and life-broad learning in the society of today and future that is characterised by ethnic and cultural diversity, multicultural world.

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## Improving the Use of Linking Words in Tertiary Level Essays

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**Abstract:** Use of linking words (LWs) in student writing in English has been in the centre of research interest in several countries recently. However, it has mainly dealt with the error analysis of the use of LWs. This study attempts to focus more on analysing tertiary level student performance before and after doing several specially designed practice tasks that are related to both language and business contexts that are employed by the study programme. The goal of the research was to determine whether students have improved their skills to use LWs in academic essays after additional training. The research was a case study. In order to attain the research goal, first, a pre-test was given to 29 first-year undergraduate students in Latvia and the errors regarding the use of LWs were analysed. Then, practice tasks were designed to address the problem areas. At the end, it was analysed what improvement in students' use of LWs can be observed in the examination essay. The results of the pre-test indicated that the main errors are the semantic and register appropriateness of the selected LWs. After additional training, the students applied more LWs and demonstrated a wider variety of their choice in the written essay. There was only one error regarding inappropriate semantic use of the selected LW, and the number of register errors had also reduced, which allows the authors to conclude that the designed practice tasks have attained their objectives. The results are significant as an attempt to address the described problem but should be tested on a larger size of a research sample.

**Keywords:** tertiary level, academic essays, linking words, errors, practice tasks, university education.

### Introduction

Latest research papers have been devoted to different aspects of the use of linking words in student writing. According to J.M. Swales and C.B. Feak, 'linking words and phrases can help a writer maintain flow and establish relationships between ideas' (Swales, Feak, 1994, 22). They distinguish subordinators, sentence connectors and phrase linkers (ibid.) D. Biber, S. Conrad and G. Leech (2002), in their turn, distinguish *linking adverbials* (LAs) to refer to the same sentence connectors, such as *therefore* and *in contrast*. As seen from the previous studies, there could be different terms used for linkers in a text; thus, in the present paper linking words (LWs) will be used to refer to both inter-sentential and inter-paragraph linking words and phrases. LWs will also refer to such text linkers, which are not used in D. Biber, S. Conrad and G. Leech's classification (Biber, Conrad, Leech, 2002), for example *indeed*, *in fact*, *actually*, *as a result*, *nonetheless*.

There are several studies on the use of LAs in student's writing at different stages of tertiary level. L. Lei's (Lei, 2012) research revealed that even applied linguistics doctoral students' writing concerning the use of LAs differs from professional writers, as they either over- or underuse linkers, for example adversative adverbials were underused because of the difficulty Chinese students faced in their selection. Another finding showed that novice writers used a rather 'limited set of linking adverbials'. Lei also noticed that doctoral students faced problems with register in selecting LAs for their writing (e.g. *because*, *actually*). L. Lei suggested analysing 'the overused, misused and underused adverbials' (Lei, 2012, 274). Moreover, L. Lei considered that it is important to work on a 'precise definition of overuse, misuse and underuse from both quantitative and qualitative perspectives' (ibid.).

Another study, performed by M. Leedham and G. Cai, demonstrated that Chinese students utilised a limited number of linking words and selected also informal ones in their academic essays when studying in the UK (Leedham, Cai, 2013, 386). The researchers considered that students had learnt them at secondary level and 'continue using them in their longer undergraduate assignments'. They also assumed that students would 'notice ... most common' LAs when reading different texts in three years of their studies and, thus, broaden their 'range of adverbials'. The feedback which they received on their writing was mentioned as another reason for improving the use of LAs (ibid.).

When analysing the use of sentence connectors in native English speakers' (NESs') and non-native English speakers' (NNEsS') or Spanish writers of English research papers M.L. Carrio-Pastor noticed that 'NNEsS used fewer listing, inferential and contrastive connectors than NES. In the categories of

summative, appositional, resultative and transitional connectors, the overall results were quite similar in both corpora (Carrio-Pastor, 2013, 195).

Prior research also demonstrates that the use of linkers, especially LAs, in undergraduate writing, such as paragraphs and academic essays, is topical, as it causes problems to students; for example, G. Anderson has found that first-year non-native speakers 'may have limited experience and familiarity with the genre'. He considers that it is important to 'provide effective instruction that will guide these students' (Anderson, 2014, 1). The linguist emphasizes that there is a relatively insufficient number of studies on the use of LAs in tertiary level writing. Although he did not do 'a thorough qualitative assessment of appropriate or inappropriate linking adverbials' (Anderson, 2014, 9), he suggested providing 'a more comprehensive list of linking adverbials, such as D. Liu's (2008) list of 110 linking adverbials' (Anderson, 2014, 10) instead of just 24. He also suggested that it is important to pre-teach 'the nuanced differences of similar LAs, such as *however* and *yet*' as well as analyse the whole text and the pedagogical goal of the process as well as the product' in order to 'assess over- and underuse' of linkers (Anderson, 2014, 9).

Z. Vincela's register-based study on non-native students' writing (essays, letters, messages) demonstrated that the use of LAs depended on the communicative purpose of the text. She observed overuse of 'a limited range of linking adverbials' and concluded that students in Latvia need to be involved in concordance-based learning. The linguist emphasized that research on students' writing of 'different registers' should be continued, especially on the over- and underuse of LAs as well as their location in a text (Vincela, 2013, 222).

Another, more recent, study was performed by M. Larsen-Walker (2017) on data-driven learning (DDL) on the use of LAs in persuasive essays, written by advanced undergraduates of an EAP course at a university in the USA. She found only 'a slight difference' between the results of the control and the treatment group, which contrasted another prior study carried out by J.R. Garner (2013). Both the studies mentioned had a rather small sample size (N=24 and N=27 in J.R. Garner's case); thus, their findings may only be treated cautiously. However, they provided several useful suggestions for further research. J.R. Garner (2013), in contrast to M. Larsen-Walker, had analysed both semantic and register appropriateness of LAs. Finally, M. Larsen-Walker (2017) recommended that DDL is important when dealing with essay writing, but it is more important to base learning on 'lexico-grammatical patterns' and 'multi-word LAs' rather than 'single words' (Larsen-Walker, 2017, 36).

All the above discussed studies demonstrate the topicality of the selected research theme. As the previous research papers have dealt mainly with the error analysis of text linkers in student writing, the aim of the present study is to focus on analysing the student performance in writing and on testing the selected task types in order to improve the students' academic writing skills in linguistic and business context as required by the study programme. Within the framework of this paper, only the use of inter-paragraph and inter-sentential LWs, not the clause linkers, will be analysed.

## Methodology

The present research deals with a corpus of 56 academic essays written in English by first-year tertiary level full-time students majoring in languages and business in Latvia. All students have studied academic writing at secondary level, so it is assumed that they possess general knowledge about typical linking words and their use in essays when they start taking a university course in academic writing.

The research goal was to determine whether students have improved their skills to use LWs in academic essays after additional training. The research questions were the following.

1. What linking words do students use and how frequently and appropriately do they use them before they have studied writing academic essays?
2. What improvement in students' use of LWs can be observed in the examination essay?

In order to reach the goal and answer the questions, the following research objectives were set.

1. to find out the type and the frequency of LWs that students use and what errors students commit when using LWs in academic essays on business topics;
2. to design practice tasks to help students improve their knowledge and skills on the use of LWs;
3. to test whether students' skills to use LWs appropriately have improved.

The research was a case study where both quantitative and qualitative research approaches were applied. In order to attain the research goal, the students were given a pre-test before the actual teaching of essay writing started. The pre-test contained 4 topics students could choose from (Appendix 1). All 4 topics were selected: 20 students chose the first topic, 5 students wrote about the second topic, 2 students wrote about the third topic and also 2 about the fourth topic. Although the formulation of the topics suggests that various essay types and organization patterns can be selected to write about each, the chosen type and pattern were not considered for this research as the research interest was an appropriate use of LWs irrespective of the selected essay type and organization pattern. The students did the pre-test electronically in the so-called *e-university platform*. The students were to write the essay in 60 minutes because that is also a standard time allocated for the examination essay to be written.

The students' errors in the pre-test regarding the use of LWs were grouped based on D. Biber, S. Conrad and G. Leech's classification of LAs (Appendix 2) and their frequency was calculated (Biber, Conrad, Leech, 2002). The objective was to find out the most frequent errors in order to obtain information what additional knowledge and skills about LWs require special attention.

There seems to be little research available on what types of tasks would be appropriate for teaching LWs while the need for designing practice tasks to address the determined problems in the use of LWs is admitted. For example, Z. Yin (2017) compared how LWs are presented and taught in 5 textbooks published by quality publishers (selected from a pool of 50 textbooks) and concluded that none of them dealt with teaching in what register the LWs are used or how frequently the respective LWs are used, that textbooks did not cover the use of LWs as discovered by a number of corpus based research on the use of LWs. He suggested using online corpora for designing tasks on teaching LWs, but he did not study how it could be applied. L. Kamelifar's study on whether teaching LWs improves the Iranian students' overall writing performance provided statistical evidence for the impact of teaching and using authentic materials. She used explanations and illustrations from authentic materials to teach LWs (Kamelifar, 2017).

Therefore, due to the little research on what types of tasks would be best for teaching register and semantic appropriateness of LWs, which appeared to be the main problem areas demonstrated by the pre-test, it was assumed that the task types frequently appearing in published textbooks will be used. The students were offered to do a multiple-choice task, and two gap filling tasks – in one the LWs were provided as a list, in the other students had to decide themselves which LW would be appropriate for the context (Appendix 3). All three tasks were designed, based on authentic texts and only the gap filling task where the LWs were provided consisted of groups of 2-3 contextually linked sentences while the other two tasks contained larger adapted extracts, consisting of several paragraphs, so that the students had an opportunity to apply their knowledge on the use of LWs and see how the particular LW suits the context semantically and register-wise.

The tasks were published in the e-university platform, and students had an opportunity to practice them in class as well as do them independently at the time best suited to them because the answer keys were provided. The students could redo the tasks for an unlimited number of times, but everyone was asked to do each task at least once. 4 students had done the tasks twice and two had made three attempts. The need to make the tasks available electronically also determined the choice of their types.

At the end of the course, all the students had to write an examination essay. The students were provided 2 variants and in each there was a choice among 4 topics, an approach similar to the one in the pre-test. The use of LWs in the examination essay was compared with the results of the pre-test, and conclusions regarding the potential improvement of students' skills to use LWs appropriately were made. The examination essay was written by 27 students. The difference in the number of sample size between the pre-test and the examination essay lies in the fact that three students had decided to drop out of the programme and did not take the examination. One student who took the examination did not write the pre-test and do the practice tasks because she was learning by distance not face-to-face and the pre-test and the practice tasks were announced as compulsory assignments. Due to the small size of the research sample statistical analysis methods were not applied for the analysis of the data as the reliability of the calculations cannot be substantiated.

The results of both the pre-test and the examination essay will be discussed in the following section of the paper. All the examples provided illustrate the original writing of the students, that is, the grammatical and spelling errors are not corrected.

## Results and Discussion

### *Results and discussion of the pre-test essay*

In total, the students had used 111 LWs in the pre-test essays. There were 3 essays where no LWs were used. One of those essays contained a number of essay organization and unity and coherence errors, in the other two, various other discourse markers were used instead of LWs. There were 3 essays where only 1 LW was found and 1 essay where the only inter-sentential and inter-paragraph LW found was the coordinating conjunction *and*, which is a register error in an academic essay. According to D. Biber, S. Conrad and G. Leech's classification (Biber, Conrad, Leech, 2002), most of the found LWs belong to enumeration (15), summation (14), contrast (14) and addition (13) LWs. The students had used the following LWs of enumeration: *firstly, secondly, thirdly, lastly, first of all, finally, then*; of summation: *to sum everything up, to sum it all up, to sum up, all in all, to summarize, overall, in conclusion*; of contrast: *however, on the other hand*; of addition: *moreover, furthermore, also*. The students had also employed the LWs of apposition (*for instance, for example*) 7 times and of result/inference (*thus, therefore, consequently*) 6 times. Both the LA of concession *besides* and the LW of transition *meanwhile* appeared once.

The most frequently used inter-sentential LW was *however*, which appeared 9 times, 5 of which were in comparison and contrast essays. The LW denotes contrast, but its use in other types of essays cannot be considered an error because the context allowed using it as, for example in the sentence:

*Of course, person should have an outstanding knowledge in order to build an inspiring career like this. However, there are many cooks in the world, but not all of them are famous to the extent as Jamie Oliver is.*

In one case *however* was used as an inter-paragraph LW together with the LW *in conclusion* to introduce the concluding paragraph, which is an error:

*However, in conclusion I may say that nowadays everything has changed, and there are female engineers as well as male make-up artists and hair stylists.*

Students had also used such linking phrases as *in my opinion, to my mind*, and adverbs *in fact, actually, unsurprisingly, of course, mostly, honestly, coincidentally, perhaps*. The above-mentioned results indicate that students use a variety of LWs, but the range is somewhat limited even if compared with D. Biber, S. Conrad and G. Leech's list (Biber, Conrad, Leech, 2002). To indicate contrast, the coordinating conjunction *but* was used 4 times to introduce a sentence (in 3 essays). The coordinating conjunction *and* appeared 9 times (in 4 essays). The use of both conjunctions to introduce a sentence demonstrates that students do not recognize them as inter-sentential LWs used in the informal register. Also, the use of: *to sum everything up, to sum it all up, to sum up* to introduce the concluding paragraph is the same type of error. For example:

- (1) *Some men may also say that women are not smart enough in the field of mechanics, so they could never trust them with their vehicles. That happens because of the stereotypes they have about how women only care about their appearance. But is it really that way?*
- (2) *The most typical professions for men are different automotive repairers, men who work in constructions and engineers. Their jobs mostly need their strength and power, because it is a physical work. And these kinds of works are better paid than women's.*
- (3) *To sum up, typical male jobs (firefighter) in Latvia are those where risk taking is a part of a daily routine, while female jobs (secretary) are characterized by the sense of security and stability.*

In two cases students had unnecessarily used two LWs of the same group:

- (1) *People are inclined to name only physical characteristics for example: men tend to have shorter hair-styles, facial hair, shorter nails, loose fitting clothing as well as their voice. Whereas women on the other hand tend to have longer hair, no facial hair, longer nails, and are used to wearing tight fitted clothing.*
- (2) *Although it might sound quite odd that cook is business leader, nevertheless I am ready to make a statement that he is one of the most excellent business leaders and entrepreneurs.*

The two examples indicate that students mix together LWs introducing a clause and LWs introducing a sentence that have the same semantic function. The provided examples also illustrate that students commit punctuation errors, that is, they lack knowledge and/or skills to use commas and semicolons as required by the respective LWs. To summarize, the pre-test indicated that students demonstrated two problem areas in the use of LWs: (1) selection of an LW that did not belong to a formal register and (2)

selection of a semantically inappropriate LW, which were also the two areas analysed in Larsen-Walker's (2017) study. To address the observed problems, it was decided that additional practice tasks (described in the methodology section of this paper) will be designed for training the students' skill to recognize and choose an LW appropriate semantically and for the register.

The pre-test essays also demonstrated punctuation errors linked with the use of LWs, but as it was not a research interest in this particular study, no practice tasks were designed especially for improving students' punctuation skills. However, knowing appropriate punctuation was a hint included in the tasks.

### **Results and discussion of the examination essay**

The results of the examination essay show that the total number of LWs the students use has increased, although there were 2 essays less submitted than in the pre-test ( $N_{LW_e}=138$  in the examination essay as opposed to  $N_{LW_p}=111$  in the pre-test). There was only one essay where no LWs were used and one essay where the LW was used only to introduce the concluding paragraph. The essay with no LWs cannot be classified as one that would demonstrate an underuse of LWs because the student had applied many other discourse markers to make the text coherent. The other essay could be considered an example of the underuse of LWs as the paragraphs were not well linked together, although some other discourse markers were applied. As the analysis of other discourse markers is not the focus of the present study, they will not be dealt with in more detail.

The examination essays also presented that the variety of LWs the students used has also increased (Table 1). The explanation could be that during the course the students have learnt and practised more LWs that were not part of the students' active vocabulary previously, for example such as *hence*, *nevertheless*.

Table 1

**LWs used in the essays**  
(based on (Biber, Conrad, Leech, 2002) classification of Las)

Type of LWs	LWs used in the pre-test essay	LWs used in the examination essay
Enumeration	first of all, firstly, secondly, thirdly, finally, lastly, then	first of all, first, firstly, secondly, second, thirdly, third, finally, lastly, next, last but not least
Addition	moreover, furthermore, also	moreover, furthermore, in addition, additionally, as well as, what is more
Summation	to sum (everything/it all) up, to summarize, overall, in conclusion, all in all	to sum up, to summarize, summarizing, in summary, overall, in conclusion, to conclude, all in all
Apposition	for instance, for example	for instance, for example
Result/ inference	thus, therefore, consequently	thus, therefore, consequently, hence
Contrast	however, on the other hand	however, on the one hand ... on the other hand
Concession	besides	besides, though, nevertheless, nonetheless
Transition	meanwhile	meanwhile

However, it has to be noted that an error still occurred in the use of *thus*. A student had used it to introduce the concluding paragraph, but the context required summation there. No other errors regarding the semantic use of LWs were observed in the examination essay. Figure 1 illustrates the comparison of the number of each inter-paragraph LWs used in the pre-test essay and the examination essay. In total, the students used inter-paragraph LWs 56 times in the examination essay while it was only 39 times in the pre-test essay. The results reveal that the students have used more LWs to link the paragraphs, especially regarding the LWs to introduce the concluding paragraph and LWs whose function is to signal that some information is added. This might be an indication to the fact that the students have learned more LWs and have the skills to use them now. They have also learned that LWs can and have to be used, along with other discourse markers, to make the text coherent.

Although several researchers have expressed concern that students over- and underuse LWs (Lei, 2012; Vincela, 2013; Anderson, 2014), no overuse was observed in the examination essays.

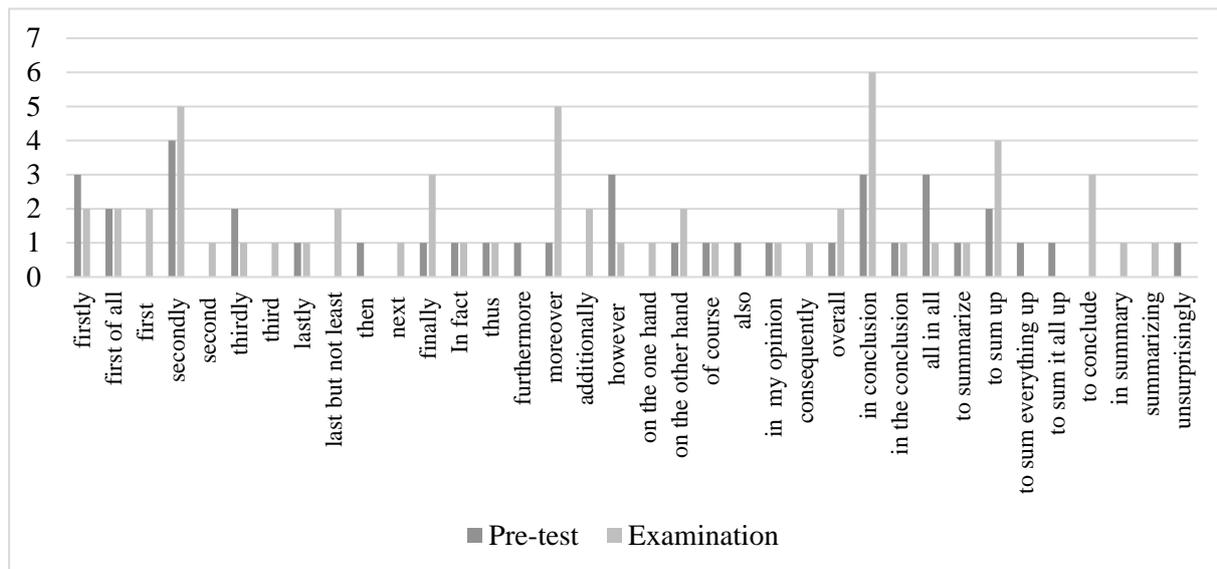


Figure 1. The number of inter-paragraph LWs used in the pre-test and the examination essays.

In the examination essay the students used 37 various inter-sentential LWs as opposed to 29 in the pre-test. Figure 2 exemplifies the frequency of only those LWs that appeared at least 4 times in one of the essays – pre-test or examination. *However*, is the most frequently used LW as it appeared 17 times in the examination essay. It appeared only in the comparison and contrast essay, which indicates to the students’ skill to use it semantically appropriately.

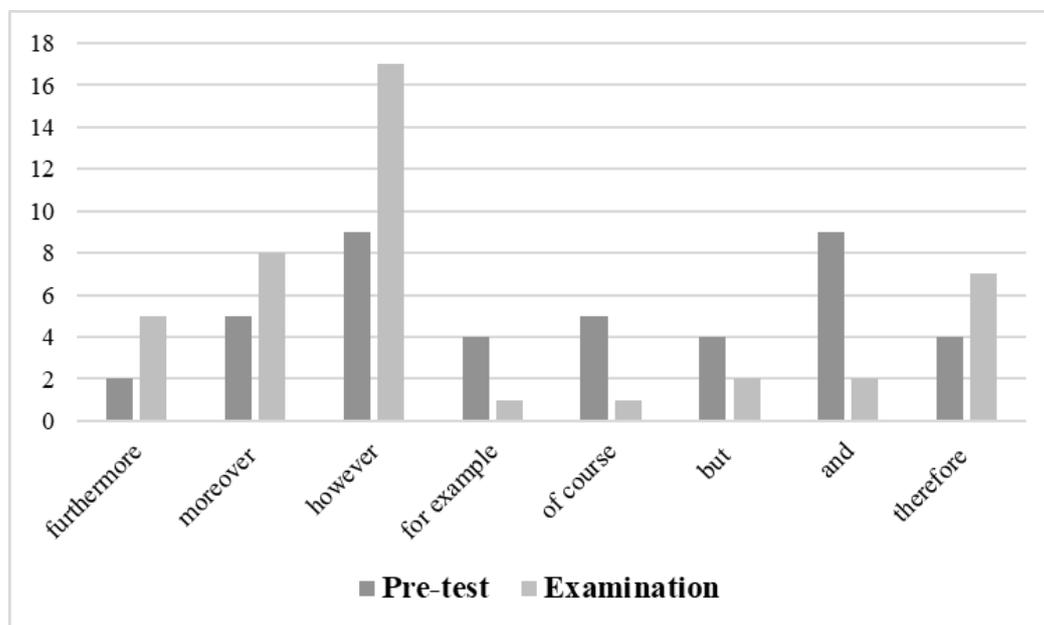


Figure 2. Frequency of inter-sentential LWs used in the pre-test and the examination essays.

Regarding the register errors, Figure 2 reveals that the students’ skills have improved. In two cases students still use both the coordinating conjunction *but* and the coordinating conjunction *and* to start a sentence in the examination essay. In fact, both cases of *but* appeared in the essay of a student who was acquiring the course material by distance and had not taken the pre-test. Both errors in the use of *and* also appear in the essay of one student who demonstrated the same error in the pre-test essay and who had not taken the additionally designed practice tasks. Not doing the practice tasks, of course, might not be the only reason why both students commit the register error, but it is one of the potential reasons. Another reason might be that changing habits or re-teaching the skills a student has developed is even more difficult than teaching something new. It is also observed in Figure 1 that *to sum up* is used in 4 cases to introduce the concluding

paragraph. One of the cases is observed in the essay of the student who acquired the course by distance. An objective reason for the error in other essays is difficult to be stated.

Although it was not the main objective of the practice tasks to train the students in using appropriate punctuation together with the selected LW, the knowledge of how LWs are punctuated could be employed as hints in the practice tasks to decide which LW is the most appropriate one. Only 1 error of inappropriate punctuation with the selected LW was observed in the examination essay. In the pre-test there were 8 errors of this type. As the difference is large, it can be assumed that the practice tasks have also helped to improve the students' punctuation skills. At least, none of the students who had not properly punctuated LWs in the pre-test had committed the same errors in the examination essay. When writing both the pre-test and the examination essay the students were allowed to use any sources available to them. The lack of punctuation errors might also be attested to the fact that the students had become aware of their errors and could edit themselves or ask an editor's web resource to help them.

## Conclusions

The study revealed that the designed practice tasks helped the students to improve their writing performance regarding the use of LWs because the number of LWs used in the examination essay and their variety increased. The number of errors in selecting LWs that are appropriate semantically and for the academic register also reduced after additional training. Because the tasks were designed based on authentic materials and dealt with business context it can be assumed that it helped to improve the students' skills to use semantically and register appropriate LWs in an academic essay on a business topic. It can also be concluded that the selected task types (multiple choice and gap filling tasks) facilitated the positive students' performance. It is justified by the fact that the student whose essay contained most register errors in the use of LWs was the one who had studied the course by distance, that is, depended on her own management of learning, and who had not done the practice tasks. Another justification is that only one error regarding inappropriate semantic use of the selected LW was observed. Thus, it can be concluded that the present study attained the research goal. The present study is significant as it addresses an issue that is very little researched. However, the research should be replicated on a larger sample in order to validate the research results and generalize the findings.

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**APPENDIX 1****Pre-test**

Write an essay on one of the themes below. The volume of the essay is 300-350 words.

1. Describe typical male jobs and female jobs in Latvia.
2. Describe a business leader in Latvia/abroad that you respect and his/her leadership style. Why is this person effective as a business leader?
3. Evaluate which economy sector in Latvia seems most attractive for development.
4. Compare two business organizations (of your choice).

**APPENDIX 2****Typical linking adverbials (based on D. Biber, S. Conrad and G. Leech, 2002, 389-391)**

<b>Semantic categories</b>	<b>Use</b>	<b>Linking adverbials</b>
enumeration and addition	(a) 'to enumerate (list) pieces of information' (389)  (b) 'to signal the addition of items to a list' (389)	(a) first(ly), second(ly), thirdly, finally, lastly, in the first/second place, first of all, for one thing ... for another, to begin with, next  (b) in addition, similarly, also, by the same token, further, furthermore, likewise, moreover
summation	to indicate 'that a unit of discourse concludes or sums up points made in the preceding discourse' (389)	in sum, to conclude, all in all, in conclusion, overall, to summarise.
apposition	'to show that the following piece of text is equivalent to, or included in, the point made in the preceding discourse' (390)	in other words, for example, for instance, e.g., which is to say, that is to say, that is, i.e., namely, viz., specifically
result/ inference	to show 'that the second unit of discourse states the results or consequence of the preceding discourse' (390)	consequently, thus, hence, therefore
contrast/ concession	(a) 'to mark some kind of contrast or conflict between information in different discourse units' (391)  (b) to signal 'that the subsequent discourse expresses something contrary to the expectations raised by the preceding clause' (391)	(a) in contrast, alternatively, on the other hand, conversely, instead, on the contrary, at any rate, by comparison, however  (b) though, anyway, anyhow, besides, nevertheless, still, in any case, at any rate, in spite of that, after all, yet
transition	to show 'the insertion of an item that does not follow directly from the previous discourse' (391)	by the way, incidentally, by the by, meanwhile, now

## APPENDIX 3

## Examples of the designed practice tasks

**Task I. Fill in the gaps with an appropriate linking adverbial from the ones provided below. Some of them should be used several times.**

consequently, for instance, likewise, therefore, furthermore, indeed, similarly, however, for example, moreover, in general, in addition, eventually, meanwhile

1. Few companies offer something so popular that their name becomes a verb. \_\_\_\_\_, that is one of the many achievements of Uber, a company founded in 2009 which is now the world's most valuable startup, worth around \$70 billion.

2. Uber's app can summon a car in moments in more than 425 cities around the world, to the fury of taxi drivers everywhere. \_\_\_\_\_ its ambitions, and the expectations underpinning its valuation, extend much further: using self-driving vehicles, it wants to make ride-hailing so cheap and convenient that people forgo car ownership altogether.

3. In the longer term autonomous vehicles will drive the reinvention of transport. \_\_\_\_\_, the first ones have already hit the road.

..... (the original task continues)

Sentences 1-4 are taken from 'The world's most valuable startup is leading the race to transform the future of transport', *The Economist* print edition, 3 September 2016

**Task II. Choose an appropriate linking word from the given options.**

Chinese tourists are an increasingly common sight in America's cities, from New York to Honolulu. About 2m Chinese visit the country each year \_\_\_\_\_ (1. and/but/in fact,) that figure is expected to rise to over 3m by the end of the decade. \_\_\_\_\_ (2. However, /But/Moreover,) it is not just Chinese tourists \_\_\_\_\_ (3. which/that/who) have been enjoying American hospitality; it's Chinese investors, too.

This week HNA Group, a Chinese firm \_\_\_\_\_ (4. what/who/that) began life as an aviation company, announced that it is to buy a 25% stake in Hilton Worldwide Holdings. It will be the largest shareholder in the hotelier \_\_\_\_\_ (5. which/that/who/whose) brands also include Embassy Suites, Hampton Inn and Conrad.

..... (the original task continues)

Adapted from 'Chinese firms are investing heavily in American hotels', published on [www.economist.com](http://www.economist.com) on 28<sup>th</sup> October 2016, written by A.W., WASHINGTON, DC

**Task III. Use an appropriate link word in the provided gaps. The link words will not be provided. Think of ones that suit the context.**

In 1959, Italian novelist Italo Calvino received a grant to spend six months in the US. \_\_\_\_\_ (1.) he arrived in New York City, he discovered a disturbing trend.

'The trend of espresso-places has been thriving for a few years in New York and is expanding to the rest of the country,' he wrote in his journal. "Sure, I'm happy when I can drink a coffee Italian-style, \_\_\_\_\_ (2.) I struggle to explain to Americans the feeling of uneasiness \_\_\_\_\_ (3.) this kind of places provoke in me."

More than 50 years later, Italians are still deeply protective of their country's reputation as the coffee capital of the world. Italians despise American-style coffee, \_\_\_\_\_ (4.) they regard as a sort of dull black broth. At the same time, they scoff at Americans' attempts to replicate espresso, \_\_\_\_\_ (5.) invariably ends up being too short, too strong, or too slow.

..... (the original task continues)

Adapted from 'The curious story of how transatlantic exchange shaped Italy's illustrious coffee culture', written by Cosimo Bizzarri, 29 May 2017.

## The Powerful People's Biographies Analysis for Modern Leaders' Identity Construction

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**Abstract:** In the article, the factors which influenced the world's most powerful people's biographies have been analysed, taking into consideration life's main features such as tendencies and risks of society's development, economy, globalization, politics, a material life model and a social and cultural environment. The aim of this research is to prove that the generalization of the world's most powerful people's life experiences is outlined as the tool of challenge for a modern leader's identity construction. A reconstruction of the person's biography has been created in the process of anthropological research. Analysing the life experience of many leaders, the authors of the article have declared that, despite the leaders' individual self-development strategy, attitude, behaviour and motivation of the specific character traits, it is possible to verify essential common features which make leaders special and unique. In the process of research, the generalization of the world's most powerful peoples' life experiences is outlined as the tool for the construction of the modern leader's identity. The study of the modern society's development reveals the necessity for the wider use of biography analysis methodology in anthropological and sociological researches. The method of biography analysis operates with data on a person's objective events and personal experiences. In the common world's context, a person is considered as a part of his/her lifetime, and his/her life "culmination" and "finish" depend on its "start" and "distance" running quality. Analysing biographies of great personalities and studying principles of their behaviour and major traits, contemporary leaders can apply the method of biographical analysis as a tool for constructing their identity. The experience and skills gained will become a vector for self-growth, self-empowerment, and transformation.

**Keywords:** leaders, leaders' identity, self-development, self-realization, biography analysis, psychology.

### Introduction

Modern theories of individualization (Walsh, 1995; Giddens, 2013) prove that the modern era society gives individuals a new role. Previous forms of social organization offered social scenarios and expected that most individuals would follow them. Modern society imposes great responsibility on the people themselves in the choice of identity. The values which were providing a clear identity in the past such as social structures or classes, extended family, community, professional, long-term employment in one company are weakened. At the same time society exposes individuals to large amounts of information and offers identification and alternative ways of life. Instead, the design of "authentic" identification on the basis of multiple samples of identity that provides the consumer society is needed (Allport, 1942). Due to the complexity of the functioning of a modern society there is a need of a constant search of specific methods of the research.

It is believed that quantitative methods are the most optimal for mass society research. However, it should be noted that there are social problems that cannot be analysed without qualitative methods. Despite the great heuristic capabilities of this method, its methodological basis still requires proper consideration. The study of its specificity and application is the subject of this article analysis (Szczepanski, 1962). Formation and development of the biographical research method took place in several disciplines.

Biographical method is indispensable for ethnography, which has always shown interest in the description of prominent personalities. With this method, psychology and psychiatry intensively study the life of one person. Biography is very important, because the history of life is considered as a causal model, i.e. a person on a subconscious level builds his life, depending on the events that happened to him before, especially in childhood. Classical sociology focused mainly on social life and public adaptation of the individual (Daresh, 1995).

The history of life and human biography became relevant for the main areas of sociology, such as symbolic interactionism, phenomenology, ethnomethodology and others. The biographical method first

time came into the study of sociology in the United States in the 1920s, then also into sociology in Poland and psychology in Austria. In the US, it had begun with a large study of Polish farmers in Europe and America, which was published in 1918-1920 by the Chicago sociologist William Thomas and his Polish counterpart F. Znaniecki. Such merit is given to these researchers, due to the fact that they collected biographical data relating to significant sociological and social psychological material. They believed that social processes must be seen as the result of a continuous interaction of consciousness of the individual and objective social reality.

Methodology and practice of sociological studies act as determinants and as products of social interaction. Therefore, the study of consciousness and self-awareness – is a necessary condition for the analysis of the social world. In addition, W. Thomas and F. Znaniecki assumed that research, based on the "life stories", will allow to reach a broader generalization concerning social groups, subcultures, classes, and so on (Beres, 1959). They developed their historical assumptions into their own kind of theories. One must take into account the objective and subjective factors of influence, if not to take into account the analysis of the "world of representations" of individuals, cannot explain why different people react differently to a given phenomenon. From the Chicago school came the whole direction of biographical research; the study of the cultural social problems of the immigrant groups, lifestyles of criminals and deviant groups, occurrences of crimes in societies, the problems within urban society, linguistic and cultural divergence (Robbins, Alvy, 2004).

*The aim of this research* is to prove that the generalization of the world's most powerful people's life experiences is outlined as the tool of challenge for a modern leader's identity construction.

### Methodology

Conducting biographical research has specific features. Firstly, biographical research, according to M. Kohli (Kohli, 2009), should be in accordance with the following regulations:

- It should give an outlook of the life of the individual as a whole;
- must take into account the relationship of the individual's life history and the society;
- comprehend the interpretative activity of the actors of everyday life (Figure 1).

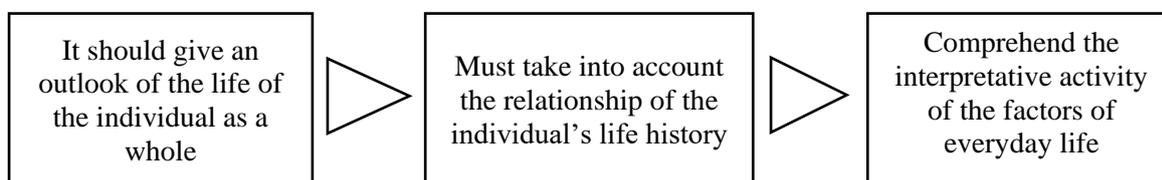


Figure 1. Regulations of biographical research.

Secondly, the specific of the biographical method is that these studies are carried out using qualitative methods. The biographical studies used a combination of methods for the collection of information: interviewing, monitoring, analysis of documents (public and private archives). In general, the collection of information is carried out according a researcher's logical framework, which reflects the main points of the studied biographies. One of the main instruments of the biographical collection of information is a semi-structured and in-depth interview (Bryman, 2012). The interview captures several thematic blocks referring to different directions, or periods of human life (such as childhood, youth, education, work). For each unit there is a list of mandatory questions or issues on which information should be obtained. Other questions can be given for clarification.

The varieties of the biographical method include: oral history, the life story, family history. The history of life and human biography became relevant for the main areas of sociology, such as symbolic interactionism, phenomenology, ethnomethodology and others (Figure 2).

Biographical data of sociology - is the main source of detailed description of the history of specific individuals. The most common source of biographical data is personal documents (memoirs, notes, diaries) or material of interviews and conversations. Only in very rare cases, the researcher deals with the biography, including all events of human life. Usually the focus is on the specific aspects or stages of life – career and interpersonal relations. Some authors, instead of referring to widely used terms "biographical method" or "life history", use the term «individual case history» emphasizing a selective

biography (Brian, 2002). This is used for analysis and use of the biographical research method often repelled by the definition of N. Denzin (Denzin, 1989), who believes that the biographical method is the experience of an individual, group or organization in the form in which that person, group or organization interpret these experiences. First of all, it should be noted that in the biographical method, the sociological approach is combined with an anthropological approach.

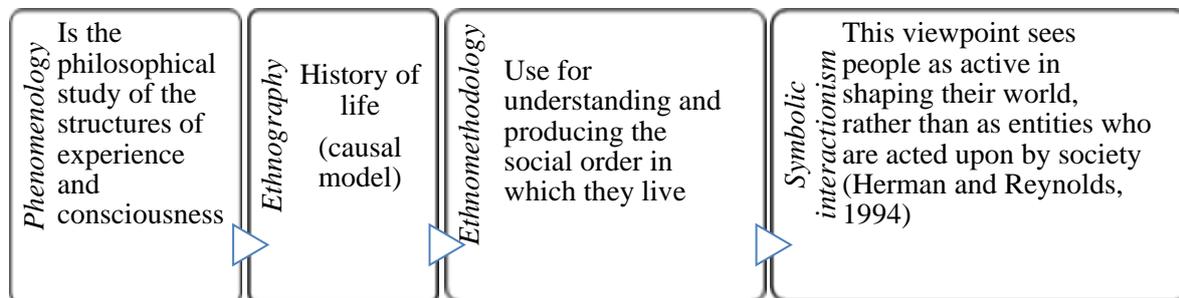


Figure 2. Biographical data for the main areas of sociology.

Biographical method is an important instrument to study the dynamics of social phenomena, norms and values through the prism of individual experiences of individuals or families. Such information is of particular importance in the crucial moments of the life of society, since it is the biography of the individual, which can serve as a typical manifestation of certain social processes. Biographical method is most appropriate where the subject has not yet been sufficiently studied and is not represented in sociological concepts and theories (Solovjov, 1981). After the 1970's, on the wave of renewed interest in the biographical method, its scope has been significantly enhanced.

At the present time it is widely used, where researchers are interested in the subjective experience of social and historical events and processes (wars, revolutions, crises, migration), and certain phases of life: childhood, sickness, and death.

Biographies of people can also be used to reconstruct the history of the formation and development of individual social institutions and organizations (such as political parties and political movements, new directions in science). In modern sociology biographical method is widely used in socio-cultural studies, since it allows to study the personality as the development process, as it allows tracing the dynamics of the way of life of the individual, groups, generations, social communities. This method allows you to explore the subcultures, as well as hard to reach social groups (Buhler, 1971). Classic examples of biographical method in sociology, associated with the description of the behaviour of living people caught in unusual or unique social situation. Quite often, the biographical method is applied in sociology to the study of attitudes of people that have achieved success (the study of the life stories of the great and famous people).

Biographical method has also been used to study a life of a typical / average person. For example, the study of W. Thomas and F. Znaniecki examines the life history of the Polish emigrant Wladek Visnevsky. The biographical method is a tool of knowledge to tackle a variety of social and socio-cultural problems. For example, what is the attitude of a person with a particular biography to a particular social institution or structure? The process of interpretation of people's biographies, produced a study of personality traits which are in demand for the production of new institutions, and the person is regarded as the source of all social and cultural changes. Biographical research provides an opportunity to explore socio-cultural codes, games, communications, relationships and contradictions. People carry the traits of both their personal and family history, the history of the layers of society strata in general, as well as the entire web of values, meanings and contradictions that human beings portray towards each other and the world around them.

If the society influences a person, it is possible to detect traces of that impact in his/her behaviour or lifestyle (Rustin, 2002). Supporters of the biographical method argue that social reality is possible to reconstruct not only on the basis of objective facts, gather statistics, but also biographical and autobiographical data. Sceptics also insist that when a person recalls his/her life events, he/she initially distorts facts for different reasons. Firstly, our memories selectively reproduce the facts and events that have occurred. Secondly, a retrospective view of life cannot rule out the estimated component, which also distorts the facts.

However, these "flaws" can also serve as a social component of the studied events. Thus, we can say that the biographical method is of great value to modern social science, because it allows you to learn complex socio-cultural phenomenon. Until recently, the use of biographical method in sociology has only been used in ethnographic research and as an illustration. However, the problem persists that the study of modern society leads to the need for greater use of the biographical method in anthropological and sociological studies (Drucker, 2011).

To investigate the peculiarities of temporal identity of generations in the historical aspect, the biographical method was used aimed at subjective assessment of self-realization of representatives of various generations in different spheres of life. Biographical method is widely used in empirical research on the temporal arrangement of several authors' life course in the science of psychology (Erzberger, 1998; Prein, Erzberger, 2000). This method, based on investigating a personality's life course in the context of time, makes it possible to study and assess the efficiency of personality's life arrangement in time and to what extent the personality identifies with it. Biographical method allows joining the general life accomplishment with the personality's subjective assessment (Miller, 2000).

The methodological basis of biographical survey is based on life sphere analysis approach (Heinz, 1999; Sackmann, Wingens, 2001) and authors' empirical data assessing the most important life spheres that to a different degree facilitate personality's *self-realization* and that may constitute the operational construct of this essential personality's self-realization course. Usually the assessment entails 5 life spheres concerned with changes in the personality's life course: 1) *education* (satisfaction with one's education level; correspondence between education and professional accomplishment, life plans, labour market and time requirements; self-growth promotion); 2) *professional action* (satisfaction with one's professional accomplishment; career growth; assessment of one's professionalism; qualification improvement; correspondence of professional action with life calling); 3) *society* (participation in social and political life; status in society; expressing one's beliefs and convictions; usefulness for others); 4) *family* (satisfaction with the family status and partner relations; family life; care for the family welfare; recognition of the family lifestyle in society; family value development and preservation); 5) *interests and self-development* (satisfaction with one's self-development level; development of interests, abilities, talents and their recognition in society; sharing experience; correspondence of the development of interests, abilities, and talents with the life calling) (Heinz, 1999; Sackmann, Wingens, 2001). Sometimes another scale of integrative life assessment is differentiated – *general life self-realization* (assessing one's achievement level; correspondence of life plans and goals to their realization; assessing one's contribution to life realization; recognition of one's accomplishments in society; satisfaction with one's life) (Zimbardo, Boyd, 1999).

### ***The world's most powerful people's biographies analysis***

If you consider the historical importance and far-reaching influence of these individuals, leadership might seem like a noble but lofty goal. But like all of us, these people started out as students, workers, and citizens who possessed ideas about how some aspect of daily life could be improved on a larger scale (Northouse, 2016). Through diligence and experience, they improved upon their ideas by sharing them with others, seeking their opinions and feedback, and constantly looking for the best way to accomplish goals for a group (Mintzberg, 1973). Thus, we all have the potential to be leaders at work, communities, regardless of age or experience. Leaders are vital at every level of an organization; cultivating leadership skills early is a great way to pave the way for success. Many people have no desire to be leaders; after all, leadership comes with many responsibilities and risks that other members of a team do not have to worry about (Collins, 2001). Thus, some people are more comfortable in the role of contributor. However, in much of today's world, teamwork is essential for completing projects and assignments, and teams without leaders usually are ineffective in achieving their goals.

Leaders inspire others to act by setting good examples. Their drive and perseverance spur others on. Leaders strive to be the best they can be—not to compete with others. In fact, a leader's job is to help others make their best contribution toward a shared goal. Leaders motivate others through mutual trust. The leader must trust in his or her teammates' abilities and willingness to pursue a goal (Daft, 1999).

Studying biographies of successful leaders who lived and worked under extreme conditions may be compared to a behavioural experiment or test in centrifuge: leaders are thrown into an extreme situation and centrifuge separated greatness from mediocrity. We investigate the difference between the great and simply good under the conditions that bring out and emphasize this difference, in order to make it

possible for modern leaders to apply their experience for self-empowerment in society (Daresh, 1995). *An established myth*: successful leaders develop from courageous prophets who are ready to take risks. *Refuting revelation*: the great leaders whose life we have studied did not possess the gift of prediction at all. They were looking for things that worked, investigated why they worked, and constructed their own policy, campaign on the basis that had proved its reliability. These leaders did not stand out from other leaders by inclination to take a risk, daring, foresight, or creativity. However, they were more disciplined; they more relied on their experience and were very particular about securing themselves against failure. *An established myth*: in the world full of danger there survives the one who is faster. Run, otherwise you will lose. *Refuting revelation*: in the world of high speed one needs fast reaction and fast decisions; therefore, all the basic principles are reduced to the call “Faster! Faster! Faster!” Successful leaders knew when they needed to hurry and when there was no need for haste. According to the guru of management, Peter Drucker, the best and possibly the only way of predicting future is creating it (Wyatt, 1990).

Studying biographies of successful leaders reveals how Karlis Ulmanis – Prime Minister of Latvia; Vaira Vike-Freiberga – Sixth President of Latvia; Henry Ford – American industrialist, founder of the Ford Motor Company; Margaret Thatcher – Prime Minister of the United Kingdom; Steve Jobs – American entrepreneur, businessman, inventor, and industrial designer; Coco Chanel – French fashion designer and businesswoman, - led their team to victory while others led their teams to failure and bankruptcy (Figure 3).



Figure 3. Studying biographies of successful leaders.

What is the difference between these leaders? Why is it so that, under extreme conditions, somebody gained success and made his/her name famous around the world, while somebody else could not survive? Those leaders acted in the same period of time under similar conditions, they pursued a common goal and therefore neither success nor failure can be accounted for exclusively by the environment: they arrived at different ends because they behaved in a different way.

### ***Behavioural principles and major traits of successful leaders***

On the one hand, successful leaders realize that they are dealing with an uncertain environment and cannot control or predict with precision many important events. On the other hand, they do not allow the outcome of their activities to be determined by external, uncontrollable forces or chance; they take full responsibility for their fate (Verespej, 2002). Biographical analysis showed that successful leaders enact this responsibility on the basis of three behavioural principles: fanatical discipline, empirical creativity, and productive paranoia (Figure 4). These principles are backed up by a single driving force – fifth-level ambition.

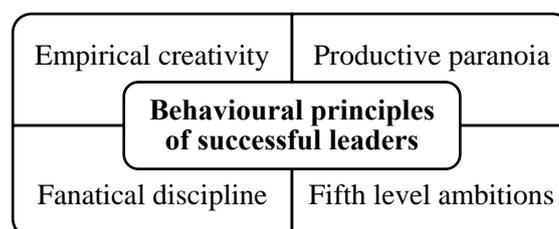


Figure 4. Behavioural principles of successful leaders.

The only kind of discipline these leaders possess is self-discipline, will, and readiness for anything for the sake of a great goal. External events cannot distract them; they do not side-track following the rest of the herd, do not take most tempting chances if they do not comply with their plan. These people are marked by wholeness and steadiness: they do not deviate from their standards and are discipline enough never to overestimate their strength. They were not just disciplined – they were fanatics.

Fanatical discipline. Discipline is basically consistency, devotion to values and long-term goals, compliance to requirements for work, keeping to a certain method. Discipline must not be mistaken for regulation, subordination within a hierarchy, imposing of bureaucratic rules. Genuine discipline means independence of mind that resists pressure and does not agree to what contradicts its values, its requirements for work, and its long-term plans. The only kind of discipline that successful leaders possess is self-discipline, will, and readiness for anything for the sake of a great goal. Karlis Ulmanis, Vaira Vike-Freiberga, Henry Ford, Margaret Thatcher, - successful leaders we have studied are non-conformists in the best meaning of this word. Their values, tasks, long-term goals and strictest requirements for work were set from the very start and they kept to them with fanatical discipline. If for the sake of this goal one needs to sidestep from the generally accepted behaviour – so much the worse for the generally accepted behaviour. Neither external forces nor even social norms could make them turn away from the selected route. In an unreliable and cruel world following a mad crowd is a steady way to destruction (Schlender, 2005). Their independence is rooted not in courage or daring, or inclination to revolt – in this sense our leaders little differ from others. But they more relied on experience that is also necessary for modern leaders.

Empirical creativity. Successful leaders, making their route under uncertain conditions, did not look back to traditional notions and the actions of others. Steve Jobs, Coco Chanel were not concerned even with the opinions of experts. They are completely focused on empirical data. Yet, as opposed to custom and common opinion, the determination of these people was not guided by willingness to prove their independence and demonstrate their stubbornness. Their task was to strengthen their independent judgement by empirical data and direct their creative instinct. Acting empirically means relying on direct observation, making experiments or deal with statistics instead of proceeding from opinions, oddities, traditional views, authorities, and uncertified ideas. Thorough empirical preparation made it possible for them to take daring, creative steps at the same time limiting the risks. Yet, strong leaders in their decisions and actions lean on much more solid empirical foundation that gives them certainty and at the same time excludes unnecessary risk (Collins, Hansen, 2011).

Productive paranoia. The analysis of biographical sources and documents reveals that successful leaders differed and differ from less successful leaders by over-alertness both at good times and bad times. In the most peaceful, predictable, beneficial situations, leaders constantly keep in mind that at any moment conditions may change and turn against them. They are even sure that the conditions will definitely, with absolute probability turn against them at some unpredictable and most inconvenient moment. Therefore, it is better to face a catastrophe in full armament (Brewer, 1994). Productive paranoia is not reduced to trying to avoid danger and searching for a safer and more pleasant route: leaders strive for great goals, whether founding a new company or a noble dream of changing the world, or willingness to serve people. This is their life credo: they strive not only to preserve what they have but also to create and consolidate something genuinely great, bigger than themselves.

Fifth-level ambitions. Then why do people follow them? Biographical analysis answers this question – because their daring ambitions are attractive: Henry Ford, Margaret Thatcher invested their selfishness and fanaticism into something more significant and lasting than themselves. Steve Jobs and Coco Chanel are ambitious, but their ambitiousness is directed not at their own ‘ego’ but at a great goal – founding a company, changing the world, at something beautiful, important, not just themselves. According to research, passing from good to great was each time executed due to the emergence of a fifth-level leader who was focused not on him/herself but on what had to be done; the leader did not stand out among others; they inspired their co-workers by principles and not by personal charisma.

Modern leaders need to make use of prophetic principles and major traits of successful leaders for constructing their conduct during self-development and implementation of their ideas (Watkins, 2001).

## **Results and Discussion**

It is very important for contemporary leaders to take into consideration that using behavioural principles and key traits of successful leaders for constructing their behaviour would not be “cloning” but a best model for self-development and self-accomplishment (Loehlin, Willerman, Horn, 1988).

Studying biographies, behavioural principles, and key traits of successful leaders like Karlis Ulmanis, Vaira Vike-Freiberga, Henry Ford, Margaret Thatcher, Steve Jobs, and Coco Chanel crystallized

directions that help systematize the acquired information and place it into three dimensions (matrix-building exercise). (Table 1; Table 2; Table 3.)

Table 1

**Childhood/Parents/Early life and Education (personal experiences, person's objective)**

	<b>Parents/Family</b>	<b>Early life/Education</b>
Kārlis Ulmanis	Father Indriķis Ulmanis and mother Lizeta. Was born in a prosperous farming family.	Studied agriculture Zurich/Leipzig University. Studied at the University of Nebraska-Lincoln.
Vaira Viķe-Freiberga	Parents escaped to Nazi Germany. Father Kārlis Viķis was sailor.	First education in refugee camp/Lubeck. Master of Arts and Psychology.
Henry Ford	Ford was devastated when his mother died. His father expected him to eventually take over the family farm, but he despised farm work.	Left home to work as an apprentice machinist in Detroit. Studied bookkeeping at Goldsmith, Bryant and Stratton Business College in Detroit.
Margaret Thatcher	Her father owned two grocery shops. He won majority on Grantham Council. Father brought up his daughter as a strict western Methodist.	Work as a research chemist. Study chemistry at Somerville College, Oxford.
Steve Jobs	Steve Jobs' biological father, Abdulfattah 'John' Jandali. Jobs' adoptive father- Paul Reinhold Jobs. Father was a student activist and spent time in jail for his political activities.	He knew how to build anything. If we needed a cabinet, he would build it. Deeply involved in electronics (10 years old). Reed college in Portland.
Coco Chanel	Gabrielle Bonheur Chanel was born in 1883 to an unmarried mother. Living a nomadic life, the family resided in rundown lodgings, her mother died of bronchitis.	Was sent to central France, to the convent of Aubazine, which ran an orphanage, stark, frugal life, demanding strict discipline. The tragedy of this, being placed in the orphanage may have been the best thing for Coco's future because it is where she learned to sew.

In producing biographical analysis and studying the correlation of favourable and unfavourable outcomes, one is not to limit oneself to only three dimensions. Other directions may be applied for processing the acquired information inserting the required data in tables (matrix-building exercise), supplementing them in the process of analysis of biographical literature.

Success in unfavourable environment gives rise to confidence. Confidence cannot be infused by speeches, it does not flow from a charismatic personality to employees and it is not heated by noisy meetings, ungrounded optimism and blind devotion (Hackman, 2002).

Studies of biographies of great personalities lead to the conclusion that the very fact of achieving certain results strengthens confidence: having overcome difficulties once, a person becomes sure that s/he will make it next time again – and again, and again (Hart, 2000).

Table 2

**A social and cultural environment (personal experiences, person's objective events)**

	<b>Social/Cultural environment</b>	<b>Surrounding</b>	<b>Assessment</b>
Kārlis Ulmanis	Was imprisoned in Pskov. Very high standard of living.	6-year rule – a Golden Age of the Latvian nation.	Rapid economic growth.
Vaira Viķe-Freiberga	She is a founding member and current President of the clubs. An honorary patron of the Paris Colloquium on the Teaching of European literatures.	Has received many medals and awards.	As a member of team of global political leaders helping to promote comprehensive reform agenda.
Henry Ford	Labour philosophy. Interest in materials science and engineering.	Arranged for his family to control the company permanently.	Ford was a pioneer of "Welfare capitalism".

	<b>Social/Cultural environment</b>	<b>Surrounding</b>	<b>Assessment</b>
Margaret Thatcher	School reports showed hard work and continual improvement. Her extracurricular activities included the piano, field hockey, poetry recitals, swimming and walking.	She was already thinking towards law and politics, the first Prime Minister with a science degree.	Active climate protection policy.
Steve Jobs	Populated with engineering families, did not want to spend his parents' money.	Simple life.	Pre-Apple, NeXT computer, iPhone iPad.
Coco Chanel	Managed to accumulate when the plate was passed. The horse culture and penchant for hunting	Chanel entry into the highest levels of British aristocracy.	Little black dress Parfum Chanel N5.

Table 3

**Tendencies and risks of society's development (personal experiences, person's objective events)**

	<b>Tendencies</b>	<b>Effect</b>	<b>Activities</b>
Kārlis Ulmanis	Served as Prime Minister - The Ulmanis regime was unique.	Education was actively used as a tool of assimilation of minorities. Political life was proscribed; Culture/economy was as eventually organized into a type of corporate statism.	Agriculture/manufacturing sectors were micromanaged to an extreme degree.
Vaira Vīķe-Freiberga	Received many thousands of letters yearly from Latvians	Has been actively participating as an invited speaker at a wide variety of international events. She was chair of the European Research Area Board Identification Committee.	Regularly visited towns and villages to meet her constituents in person.
Henry Ford	The five-dollar wage, the five-day workweek.	Preserving Americana. Ford was adamantly against labour unions.	Ford had a global vision.
Margaret Thatcher	She imposed public expenditure cuts on the state education system.	...of free milk for schoolchildren aged seven to eleven. Northern Ireland.	The first former Prime Minister to set up a foundation.
Steve Jobs	He was given a summer job	Apple -one of the first highly successful mass-produced.	Investor, industrial designer.
Coco Chanel	She was among other girls dubbed poseuses, the performers who entertained the crowd between star turns.	Her singing voice was marginal, and she failed to find stage work 70 years old, after having her couture house closed for 15 years, she felt the time was right for her to re-enter the fashion world.	Businesswoman, Fashion designer.

Analysis of biographies of powerful people provided for bringing out factors influencing their formation as personalities that may be used by modern leaders for constructing their identities (Figure 5). This leads to the conclusion that the world's most powerful people's life experiences constitute the basic platform for the leaders' self-development, self-perfection, and self-realization.

Biographical analysis reveals that successful leaders have learned from their errors. They regarded their errors as a lesson, expensive as it may be: once the misfortune has happened, one must put it to some kind of use, learn this lesson and never again repeat errors like that. The analysed documents illustrate an extremely important principle: in the unstable, unreliable, fast changing world one must not rely on pure analysis: theory is of no avail whatsoever. Certainly, analytical skills are still on demand, but empirical proofs are much more important. Modern leaders must take this into consideration when using the results of biographical analysis (Hyman, Sheatsley, 1956).

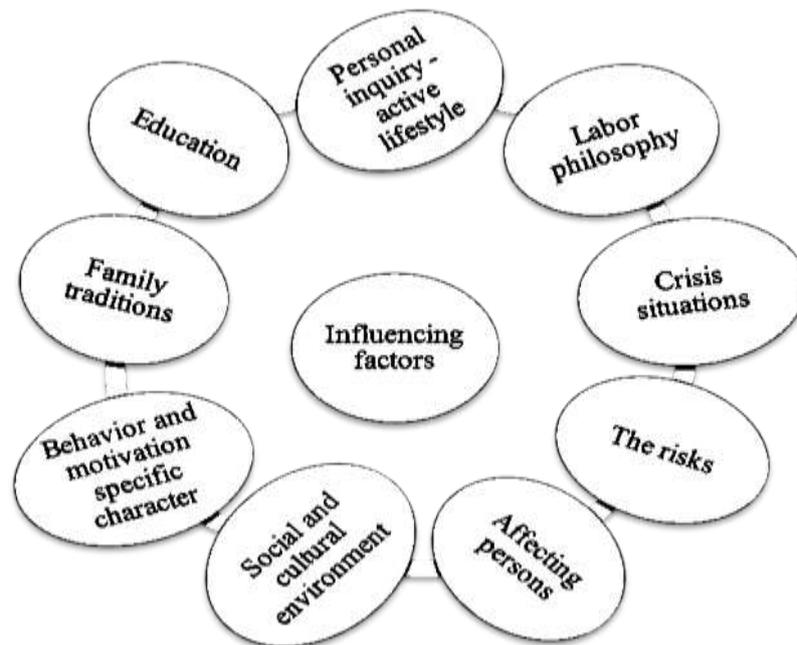


Figure 5. Factors influencing people' formation as personalities.

***The basic principle runs: check everything in practice***

Having set an intention in the early 2000s to open a chain of Apple retail shops, Steve Jobs admitted at once that he did not know how to do it. Jobs invited Drexler to join the board of directors of his company and started learning hard. Drexler advised Jobs not to start straight away with a huge swing, not to open twenty, forty shops but to develop a project of a shop and adjust it several times until it starts working, and only then spread the network across the world, when everything is tried, and the utility of the project is proved. Jobs followed the advice. The first cycle did not yield the expected results, so Jobs adjusted the conception, tried out in practice and adjusted again until everything was running smoothly.

It is impossible to predict concrete trouble with certainty; therefore, leaders regularly accumulate reserves and prepare shock-absorbers exactly for unpredictable events. For sure, successful leaders do take risks from time to time, yet, as compared to others in similar situations, they more often refrain from risk, control it, and avoid it (Roy, 2015).

According to many contemporary industrial psychologists' expertise, e.g. R. Hogan (Hogan, 1996), five categories of traits are singled out that are especially significant for leader behaviour: being tended towards society, readiness to seek for agreement, responsibility, sensibility and openness to new experience. Summarizing numerous concepts in the investigation of the phenomenon of leadership, one of the major European management experts, M. Kets de Vries (Kets de Vries, 2009) enumerates the major concept trends for contemporary leader self-realization:

- *dynamism* – referring to special people who are goal-oriented, insistent, having their own vision and style and who are tended towards success; they keep acting even when others do not support them;
- *communicability* – successful leaders have highly developed communication skills (complying with the scale of extroversion in all authors' opinion);
- *enterprise* – successful leaders are always open to new ideas and methods of implementation;
- *readiness to reach agreement* – search for agreement is the basis of modern teamwork. Good leaders are usually responsive, they are flexible, therefore recognized team players;
- *reliability* – efficient leaders are responsible and usually finish all they have started;
- *analytical intellect* most of efficient leaders are marked by the analytical intellect higher than average. It helps think strategically, yet, paradoxically as it may be, too high IQ is not advisable because in that case people are tended to rationalize their personal opinion;
- *emotional potential* successful leaders know how to manage their emotions and understand feelings of others, they have a high level of empathy, they can assess their own and other people's strong and weak points, thus justifying their choices of supporting, sustaining and directing relations towards reaching the set goals.

Analysis of biographies of great personalities and studies of the correlation of favourable and unfavourable outcomes to the speed of awareness, speed of making decision and its execution lead to a conclusion that many leaders were ruined by faltering when faced by upcoming risks (Zinn, 2004). "Speed and Outcome" summarizes the results of the above-mentioned analysis. It reveals a much more interesting picture than the primitive rule, "Move faster in any circumstances". We ascertained that it is much more useful to recognize change or threat in advance and use all the time at one's disposal – be it much or little – for making a deliberate and strictly executable decision than make decision after decision in haste. The key question in this respect proved to be, "How much time do we have before the character of the threat or risk we are facing changes?" instead of "Shall we act fast or slowly?"

## Conclusions

Analysing biographies of great personalities and studying principles of their behaviour and major traits, modern leaders can apply the method of biographical analysis as a tool for constructing their identity. The experience and skills gained will become a vector for self-growth, self-empowerment, and transformation.

Biographical method is an important instrument to study the dynamics of social phenomena, norms and values through the prism of individual experiences of individuals or families. Modern leaders, when applying the experience of great personalities, ought to take into consideration that sometimes risk may be aggravated by hasty actions, sometimes by faltering. Such information is of particular importance in the crucial moments of the life of society, since it is the biography of the individual, which can serve as a typical manifestation of certain social processes. Biographical method is most appropriate where the subject has not yet been sufficiently studied and is not represented in sociological concepts and theories.

The analysis of biographical sources and documents reveals that successful leaders differed and differ from less successful leaders by over-alertness both at good times and bad times. In the most peaceful, predictable, beneficial situations, leaders constantly keep in mind that at any moment conditions may change and turn against them. They are even sure that the conditions will definitely, with absolute probability turn against them at some unpredictable and most inconvenient moment.

Biographical analysis reveals that successful leaders have learned from their errors. They regarded their errors as a lesson, expensive as it may be: once the misfortune has happened, one must put it to some kind of use, learn this lesson and never again repeat errors like that. The analysed documents illustrate an extremely important principle: in the unstable, unreliable, fast changing world one must not rely on pure analysis: theory is of no avail whatsoever.

A retrospective point of view shows that the basic platform for the leader's self-development, an opportunity of the choice of environment with successful people and creation of strong contacts with them, a possibility to change his/her thinking approach and to create innovative work products on the basis of it. And we prove that the generalization of the world's most powerful people's life experiences is outlined as the tool of challenge for a modern leader's identity construction.

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## Definition and Dynamics of Gender-Specific Behaviours of Latvian Males and Females

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**Abstract:** To date, the various female and male social characteristics and social roles existing in different societies have been researched. Some aspects of gender similarities and differences have also been studied in Latvia, in the branches of family, legal, judicial psychology and management. Yet, the issue of gender peculiarities at a specific stage of personality development has not been sufficiently addressed, especially with regard to similarities and differences of gender behaviour in the youth, early and mid-maturity age groups. Hence, a study of this issue ought to be considered as justified and necessary. Consequently, the main aim of this research is to explore gender-specific behaviours of Latvian males and females in the youth, early and mid-maturity age groups. The theoretical grounds of this study, based on both classical theories and current research results, triggered the authors' scientific curiosity and contributed to the formulation of three research questions about gender similarities and differences in the behaviours of Latvian males and females at the ages of youth, early and mid-maturity. Quantitative methodology was used to conduct the present research. 168 respondents ( $N = 168$ ) from different regions of Latvia aged 18 to 60 took part in Bem Sex-Role Inventory (BSRI) survey. Statistical methods for data analysis: *Cronbach's Alpha coefficient* to determine the credibility and consistency of the indicators, *NPar Test* to determine the distribution of the obtained results, linear regression to analyse the differences in *Enter* results, descriptive statistics. On the basis of survey results, gender-specific behaviours of Latvian males and females in the youth, early and mid-maturity age groups were defined, and their dynamics were explored. In the course of the present research, it was concluded that resulting from the construction of social models for male and female gender-specific behaviours, the system of values, which is defined by the social culture and the accepted social norms, becomes the determinant.

**Keywords:** dynamics of gender-specific behaviours of males and females; age groups, psychology.

### Introduction

The prevalent gender theories in modern social and humanitarian sciences include the gender social construction theory, understanding of gender as a stratification category and interpretation of gender as a cultural symbol. Various studies in the sphere of gender socialisation (Agustin, 2013; Crawford, Unger, 2004) claim that there exist certain traditional pre-conceptions of gender identity and certain peculiarities specific to feminine and masculine behaviour.

In the 20th century there was a prevalence of studies on gender differences rather than similarities (Cramer et al., 2001; Eagly, Karon, Makhijani, 1995; Rustin, Foels, 2012). Thus, developed a tendency to look at men and women as bearers of opposite and mutually excluding sets of features. Gender was considered a dichotomous characteristic, that is, disregarding the fact that both male and female sex contains in itself some features of the opposite. This became one of the causes for social psychology researchers' endeavours to pinpoint not only the gender differences, but also the similarities (Bem, 1974; Kohlberg, 1966; Maccoby, Jacklin, 1974).

L. Kohlberg (1966) in his cognitive-developmental theory argues that all information regarding gender-specific behaviour is reflected in our consciousness in the form of gender schemas. By focusing an individual's attention on certain things, gender schemas influence the way we process information and affect the memory, as it is easier for a person to remember the information which falls into some pre-existing framework of conceptions. Thus, cognitive categories, also called schemas, allow for reducing the amount of information an individual has to process. L. Kohlberg's studies do not confirm the premise that deviation from gender – role standards generate psychological inconsistencies.

Nonetheless, according to the new gender psychology of E. Maccoby and C. Jacklin (Maccoby, Jacklin, 1974), S. Bem (Bem, 1974; Bem, 1993), the main part in the development of psychological gender and gender roles is played by social expectations of a given society, which develop in response to a specific social and cultural matrix and find expression in the way the younger generation is brought up. The gender

we are born into can only help predict a person's potential behaviour. Yet, the chief determinant is the psychological and social gender which is acquired in the course of one's life and whose development is essentially affected by the variations in gender roles and the corresponding social expectations peculiar to the specific culture. The main aspect of this conception is the premise that there exists a male and female standard in general, and that there are also certain behavioural standards (genders) within male and female behaviour. S. Bem argues that male and female behaviour is grounded in preconceptions about masculinity and femininity that we have inherited from our culture: a set of social roles known as male and female gender roles. Hence, masculinity and femininity as focal measures of human personality were accepted as grounding premises of the present study.

Contemporary gender theory (Fagan, Hebson, 2006; Lips, 2014; Rustin, Foels, 2012) does not attempt to question the biological, social and psychological differences between specific women and men. According to this theory, the fact of there being any differences is not as important in itself as the socio-cultural evaluation and interpretation of these differences, as well as the building of a power system on the grounds of them. Thus, gender ought to be conceived not as a real social difference between men and women, but as a discourse that corresponds to certain groups of objects whose social roles are determined by gender- or biological differences according to economic positions or the belonging to certain ethnic or race communities.

It can be argued that currently in social sciences there is no balanced conception of gender. There exists no unbiased material which would allow for an accurate worldview and an understating that the society consists of women and men, without some accompanying traditional stereotypes on women or men arising in the human consciousness. Confusion is generated by the fact that the notions "femininity" and "masculinity" bear different meanings. The scientific community is not unanimous in what exactly these notions measure, and there is no uniform test for these concepts. On the grounds of the analysis of the afore-mentioned social psychological theories, it can be argued that the differentiation of the notions "sex" and "gender" precipitated a progress towards a new theoretical level of understanding of the social processes.

The main *aim of this research* is to explore gender-specific behaviours of Latvian males and females in the youth, early and mid-maturity age groups.

The following chapter describes the course of research, which was conducted with the aim: by adapting Bem Sex-Role Inventory, to explore and differentiate gender-specific behaviours of Latvian males and females at the stages of youth, early and mid-maturity.

## **Methodology**

The conducted research was non-experimental and took place in 2016-2017 in real-life conditions in different regions of Latvia. The following research questions were proposed: (1) how can male and female gender-specific behaviours be defined in the youth age group? (2) how can male and female gender-specific behaviours be defined in the early and mid-maturity age groups? (3) are there any gender similarities and differences regarding male and female behaviours in the youth, early and mid-maturity age groups?

Within the framework of empirical research design, a set of instruments was created for deepening of the understanding of male and female gender peculiarities: a questionnaire was developed on the grounds of Bem Sex-Role Inventory. The questionnaire was drawn up to determine the place of masculinity and femininity in the cultural discourse, rather than on the level of individual's personality. In effect, it attempted to counter the beliefs that viewed masculinity and femininity as focal measures of human personality.

The questionnaire consists of 60 statements. The methodology contains instructions, a questionnaire form and recommendation for processing and interpretation of the obtained results. The gathered data were quantitative. A written survey was conducted with the goal of defining and exploring the dynamics of gender-specific behaviours among women and men from different regions of Latvia. The definition and dynamics of gender similarities and differences between male and female behaviours in the youth, early and mid-maturity age groups was grounded in S. Bem's (Bem, 1974; 1993) conception and was calculated by using the SPSS data processing programme.

## Results and Discussion

For research purposes, three age groups of men and women were selected according to E. Ericsson's (Eriksons, 1998) classification of ages within the psychosocial development theory. The first group of respondents was made up of men and women aged 18 to 19 (youth age group); the second group comprised men and women aged 20 to 25 (early maturity); the third group of respondents consisted of men and women aged 26 to 60 (mid maturity). All in all, 168 respondents ( $N = 168$  (100 %)) took part in the research, age:  $M = 25.90$ ,  $SD = 10.395$ ; sex:  $M = 0.37$ ,  $SD = 0.484$ ). Of those – 106 women ( $n = 106$  (63.1 %),  $M = 2.04$ ,  $SD = 0.855$ ) and 62 men ( $n = 62$  (36.9 %),  $M = 1.88$ ,  $SD = 0.791$ ). Non-probability sampling was used in the selection of respondents.

In the course of the research, the masculinity and femininity scale were measured: *masculinity* is manifested in personality's orientation towards target achievement beyond a situation of direct interpersonal interaction, whereas *femininity* is determined by contacts with other people, which are grounded in emotional intimacy and attachment. The figures of *Cronbach's Alpha coefficient* range from 0.743 to 0.784, which testifies of a sufficiently high consistency of the questionnaire: femininity scale –  $\lambda = 0.743$ ; masculinity scale –  $\lambda = 0.784$ . Before measuring the masculinity and femininity index in different age groups, we determined the frequency distribution, the root-mean-square deviation and standard deviation in all groups of respondents, as well as the range of statistic data variation. For the feature under study, statistically significant differences according to normal distribution were detected within the entire group of respondents ( $N = 168$ ). As a result, correspondence to normal distribution was established (*Kolmogorov-Smirnov's test*):  $Z = 0.749$ ,  $p = 0.615 > 0.05$ .

The survey results indicate that in the age group of 18 to 19 years ( $M = 0.54$ ,  $SD = 0.237$ ) the masculinity index ranges from -0.05 to +1.00. It can be concluded that in this age group for both women and men masculinity is less pronounced than femininity. Whereas in the same age group of 18 to 19 years ( $M = 0.59$ ,  $SD = 0.192$ ) the index of femininity varies from -0.10 to +0.95 (Figure 1, 2). Thus, it was established that in this age group for both women and men femininity is more pronounced than masculinity.

In the age group of 20 to 25 years ( $M = 0.57$ ,  $SD = 0.213$ ) the masculinity index ranges between -0.15 to +0.95, while the femininity index in this age group ( $M = 0.57$ ,  $SD = 0.192$ ) varies from -0.10 to +0.90 (Figure 1, 2). Thus, it can be concluded that in this age group for both women and men masculinity is less pronounced than femininity. The indicators are almost identical if compared to the masculinity and femininity scale in the age group of 18 to 19 years.

In the last group of respondents of 26 to 60 years ( $M = 0.56$ ,  $SD = 0.198$ ) the masculinity index ranges from -0.15 to +0.95, which leads to a conclusion that in this age group for both women and men masculinity is less pronounced than femininity. The figures are practically the same as with the masculinity scale in the age group of 18 to 19 years. Whereas in the age of 26 to 60 years ( $M = 0.62$ ,  $SD = 0.179$ ) the femininity index varies from -0.00 to +0.90. In this age group the masculinity indicators are not marked, while femininity is pronounced (Figure 1, 2).

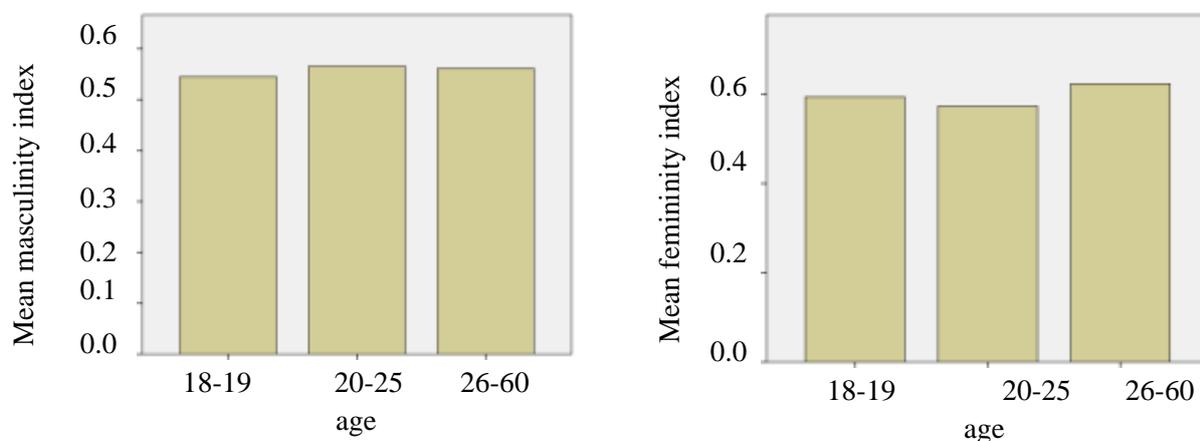


Figure 1. Mean masculinity and femininity index in the age group of 18 to 60 years.

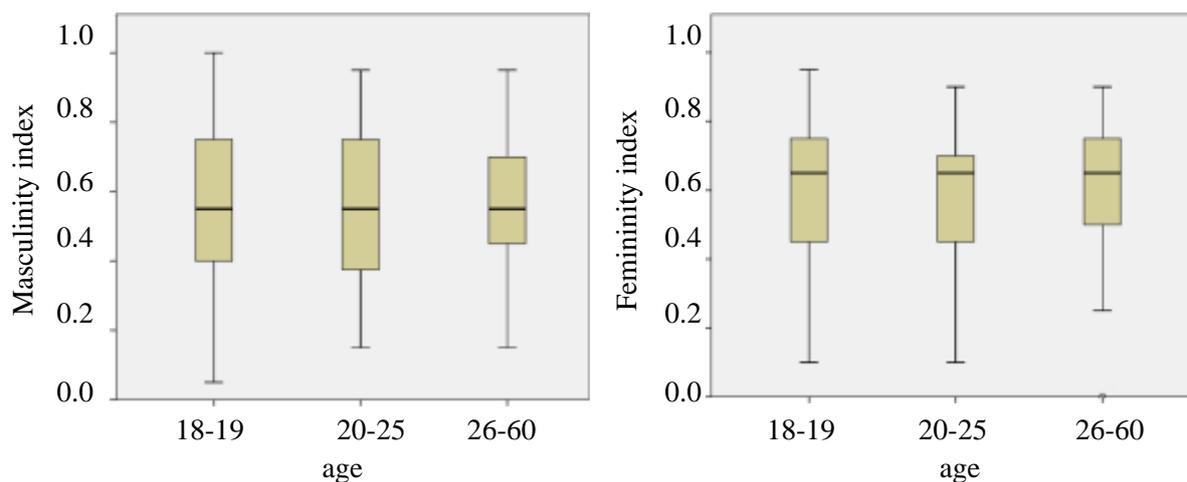


Figure 2. Masculinity and femininity index in the age group of 18 to 60 years.

To determine the impact of age and sex on the dynamics of masculinity and femininity index, the method of linear regression was used (Table 1).

Table 1

The impact of age and sex on masculinity and femininity index (n = 168)

Independent variable	B	SE	$\beta$	t	p
Age	- 0.004	0.004	- 0.063	- 0.865	0.471
Sex	- 0.550	0.095	0.432*	- 5.675	0.001

\* $p < 0.01$ ; \*\* $p < 0.05$   $R^2 = 0.187$

The research results proved that the femininity and masculinity index is statistically different in  $t = -5.675$ ,  $p < 0.01$ . The regression model explains more than 18 % of the general dispersion variables ( $\Delta R^2 = 0.187$ ,  $p < 0.01$ ). Thus, it was concluded that the independent variable “age” does not impact the masculinity and femininity index, whereas the independent variable “sex” affects the masculinity and femininity index ( $\beta = 0.432$ ,  $p = 0.001 < 0.01$ ).

## Conclusions

As a result of the empirical research, the essence of male and female gender-specific behaviour was determined. The first – masculine gender group (high masculinity indicators) comprises the respondents’ personality characteristics such as propensity to risk-taking, aggressive behaviour, autonomy and independence for men and caution, tenderness, benevolent communication and care for women. Thus, the object-instrumental pattern of behaviour was distinguished. A male value such as the “normality of success or status” is determined by the rate of a man’s salary and success at work. The “norm of intellectual strength” envisages that a man ought to be knowledgeable, competent and always in control of the situation, which leads to problems in the sphere of interpersonal relationships. The “norm of physical strength” contains expectations that a man will be physically strong, masculine and will not shrink from danger. The norm of “emotional strength” purports that a man is not allowed to show his feelings or demonstrate emotional weakness and that he ought to solve his problems independently. The “anti-femininity norm” professes an idea that men ought to avoid activities and personality traits associated with women.

In addition, in the course of the research the second, feminine gender group (high femininity indicators) was established, which is characterised by features such as tenderness, femininity, goodness, loyalty, attentiveness to others, subjectivity and susceptibility, impetuosity, competition and dominance. Thus, the emotional-expressive pattern of behaviour was distinguished.

The research of Latvian female and male gender-specific behaviour and its dynamics permits to conclude that in the age group of 18 to 60 years significant gender differences were not established. Among the respondents aged 18 to 60, more similarities than differences were discovered: a much higher

femininity index than masculinity index. Gender differences are grounded in the idea that men are more masculine than feminine, and women are more feminine than masculine.

The final research results demonstrate a slight difference in men's propensity towards feminine behaviour in the age groups of 18 to 19 years and 26 to 60 years. In the course of research, more similar masculinity and femininity indicators were discovered in the age groups of 18 to 19 years and 26 to 60 years. On the grounds of the research results, it was concluded that no dynamic of differences in gender-specific behavioural patterns across the three age groups of men and women was observed: it is not age but sex which affects the level of masculinity and femininity.

In the course of research, it was established that across all age groups both men and women display a rather high index of androgyny: high indicators according to both masculine as well as feminine features. Thus, only a partial stereo typicality of gender behaviour of both sexes was revealed. More typified women and men were ascertained in the age group of early maturity ( $n = 109$ ;  $M = 30.06$ ,  $SD = 10.814$ ): only 6 out of 39 men displayed high indicators according to masculine features, the other 33 – androgynous; one woman – high masculinity index; 6 out of 70 women displayed high femininity indicators of behavioural patterns, while the remaining 63 – androgynous.

The scope of research conducted in the sphere of gender psychology states: although on the average the characteristics typical of men and women actually do differ, in reality, the differences within men as a group and women as a group are much more pronounced than between men and women as such. It can be argued that the issue remains open: what culturally determined system of values or what standpoints to choose in order to create a measure for femininity or masculinity which would not legitimise the existing negative stereotypes on gender differences and similarities, and not be mistaken in the veracity of the new priority.

The obtained results indicate that alongside the rapid development of the industrialisation process and progressive technologies, a decrease in the psychological differences between men and women can be observed. Thus, the results of the present research demonstrate the adaptability of society to the changing life circumstances. This aspect warrants further and more in-depth study.

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## Paradigms, Approaches and Principals of Knowledge Management

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**Abstract:** This article is the continuing of the theoretical research in the field of knowledge management. The aim of this study is to review the conceptual foundations of the knowledge management paradigms, approaches and principals in the context of its application in at the local community level. The authors give an overview of the knowledge management paradigms, approaches and principals. By analysing the different conceptions, the authors have come to the conclusion that knowledge cannot be directly managed; it can only be indirectly managed through the carriers of the knowledge - the people (through human resource management), the technology (through information management and information technology management) and the interaction between them (information flows and communication). By analysing top-down and bottom-up approaches the authors stress that the people are the primary source of knowledge while technology is the secondary source; however, technology is necessary for the orderly storage, retrieval, and sharing of knowledge. The authors also write about application of knowledge management principles at local community level: a learning community and organisation build collaborative relationships in order to draw strength from the diverse knowledge, experience, capabilities.

**Keywords:** knowledge management, paradigms, approaches and principals, local communities, adult education.

### Introduction

The key factor in the knowledge-based society is the generation and exploitation of knowledge. Within global development, knowledge management is about utilizing and leveraging what is already known to work to achieve the greatest impact and improve outcomes in organizations. Knowledge management is the art of transforming information and intellectual assets into enduring value for an organisation's 'clients' and its people.

Knowledge management is a concept and a term that arose approximately two decades ago, roughly in 1990. Quite simply one might say that it means organizing an organization's information and knowledge holistically (Davidova, Kokina, Zarina, 2014). The desire to use scientific knowledge appropriately and effectively for human development has enhanced the development and further refinement of knowledge management methodologies (paradigms and approaches) and principles.

In terms of organization as a knowledge system and knowledge as competitive resources, most researchers (Probst, Raub, Romhardt, 2000; Shin, Holden, Schmidt, 2001) look at knowledge management as a process. In this context knowledge management also consists of an interaction procedure linking up individual knowledge to create social knowledge: this procedure includes creation, storage, distribution, and application, as well as becomes a controlled implementation aspect of organizational strategy and vision.

Scientists and practitioners have developed and continue to refine methodologies of knowledge management with the aim to implement it into practice of public organisations and local communities (Davenport, 1996; Nonaka, 2007; Probst, Raub, Romhardt, 2000; Shin, Holden, Schmidt, 2001; Tiwana, 2002; Wenger, 1998). However, it is important to analyse different conceptions of paradigms, approaches and principals in the prism of its application at local community level.

*The aim of this study* is to review the conceptual foundations of knowledge management paradigms, approaches and principals in the context of its application at local community level.

### Methodology

The research undertaken for this article is theoretical and based on a study and synthesis of the existing literature on the topic. The scope of the literature consulted includes classic management literature and articles specifically on knowledge management. Knowledge is a transdisciplinary field and indeed incorporates many disciplines such as philosophy, economics, management, information technology,

human resources, psychology, sociology, communication studies and many more. The focus of this article will be on the managerial and business aspects of knowledge management.

## Results and Discussion

### *Paradigms of knowledge management*

The paradigm provides researchers and practitioners with a shared perspective on their field. In knowledge management the fundamental entity is knowledge, which has traditionally been the subject of epistemology and philosophy of science (Essers, Schreinemakers, 1997, 26). Some synonyms for paradigm are conceptual framework, interpretative framework, mental model and shared vision.

I. Nonaka (2007) notes that the managerial philosophy in the West conceives the organisation as a machine for information processing (thus a paradigm founded in rationalism). The only useful knowledge is formal and systematic (thus declarative and procedural knowledge), knowledge that is or comes from hard data, formulae, codified procedures and universal principles which corresponds to the idea of eternal truths of R. Descartes, B. Spinoza, D. Hume and I. Kant. Knowledge is explicit, expressed in numbers and words and easily communicated.

On the other hand, the Eastern paradigm is based on soft and qualitative elements where knowledge is tacit and resides in the individual's experiences, beliefs and perceptions. Knowledge is acquired through learning from direct experience and trial and error. I. Nonaka argues for the Eastern paradigm (founded in empiricism) with regard to knowledge creation and management that is intuitive and subjective. Furthermore, the organisation is seen as a living organism and flourishes in redundancy - the conscious overlapping of company information, business activities and managerial responsibilities. He stresses that management in the West must discard the notion that knowledge can be acquired and taught, by manuals, books and lectures.

The authors of this article are not in complete agreement with either of these paradigms of management. The synthesis arising from Western and Eastern paradigms would be the ideal management approach and there are quite a few authors who agree in the literature. This synthesis represents the paradigm shift that must take place in management to accommodate the subjective nature of knowledge.

There are three paths to achieve synthesis presented in this article. Firstly, M.J. Wheatley (1994) contends that we live in a world that still largely has 'Newtonian' type thinking of rationality, linearity, order, hierarchy. However, there are useful metaphors and images for knowledge management in organisations to be found in the 'new science' of chaos theory, quantum mechanics, self-organising systems, complexity theory, non-linear systems. Thus, information (not to even mention knowledge) cannot be controlled and much less managed. She proposes that information should be encouraged (reminiscent of the redundancy in the Eastern paradigm) and the principles of self-organising systems should be allowed to take over.

Secondly, in terms of system thinking views amongst others business and human endeavours as systems where all components are joined by interconnections and as such are "*bound by the invisible fabric of interrelated actions, which often take years to fully play out their effects on each other*" (Senge, 1990, 6-7). But the Western paradigm focusses not on the whole system but only on parts of it, so called 'snapshots' of isolated components of the system and here lies its weakness. The adoption of systems thinking which requires a shift of mind (metanoia) will supplement this weakness. No longer are people separate from the world but connected and that "*problems are not caused by someone or something out there [but that] our own actions create the problems we experience*" (Senge, 1990, 12-13) (square brackets are authors' own inclusion).

Lastly, information ecology, proposed by T.H. Davenport and L. Prusak (1997), emphasises an organisation's entire information environment. It addresses all of the organisation's values and beliefs about information:

- the corporate culture;
- how people actually use information and what they do with it (behaviour and work processes);
- the pitfalls that can interfere with information sharing (politics);
- what information systems are there already in place (technology).

The 'information ecology' paradigm is holistic and multidisciplinary, relying on the disciplines of biology, sociology, psychology, economics, political science and business strategy.

Information ecology has four key qualities:

- the integration of diverse types of information (from the biological analogy of species diversity);
- the recognition of evolutionary change (the business environment is continuously changing, therefore, the information needs as well);
- an emphasis on observation and description instead of modelling and prescription;
- focus on people and information behaviour (i.e. not only the providers but also the recipients).

### ***Approaches to knowledge management***

#### *1. Different analogies with regard to knowledge and organisations*

*"Knowledge management is a discipline that promotes an integrated approach to identifying, capturing, evaluating, retrieving, and sharing all of an enterprise's information assets. These assets may include databases, documents, policies, procedures, and previously un-captured expertise and experience in individual workers"* (Duhon, 1998, 8).

With regard to knowledge management there are two prominent analogies, namely economics and biology. The economic analogy refers to accumulated knowledge as intellectual capital, as an extension of the concept of capital. Although, the economic analogy is generally favoured by managers due to its economic (and therefore profitable) nature; it is limited somewhat as the analogy is not entirely appropriate: knowledge creation is not the same as labour and knowledge assets is not the same as other assets.

The biological analogy sees the organism on as an organism where the accumulated knowledge is referred to as a corporate memory. The idea of organisational memetic (Price, 1995) builds on the biological analogy: whereas an organism is a creation of genes, an organisation can be seen as a product of the meme (or mental model) acting like a gene resulting in an organisation that self-organises around a set of unexpressed rules and assumptions. The biological analogy is also supported by the metaphor of information as lifeblood and the system through which information is circulated is the circulatory system. Thus, information enables the life of the organism (the organisation) but in itself does not initiate actions in the way knowledge resident in the brain (top management) can.

According to J. Taylor and W. Wacker (1997), the synthesis of economic and biological theory is found in bionomics. They further predict that bionomics will flourish as an academic discipline because as a result of this merging *"economic systems will assume the properties of biological ones"* (Taylor, Wacker, 1997, 100).

#### *2. Top-down or bottom-up management?*

According to L. Remeikis (1996), knowledge management can be a 'grass roots' sort of effort without the involvement of senior management or their support. This contrasts with T.H. Davenport (1996) assuming that knowledge management can thrive without support from senior executives is a pitfall. According to him, one might be able to build a little knowledge repository without top management support, but this is unlikely to bring about any real transformations in the organisation.

Surveying 25 firms that had attempted to improve knowledge work processes T.H. Davenport (1996) found that in general, the most effective improvement approaches struck a middle ground between top-down re-engineering of the process and bottom-up design by autonomous knowledge workers.

I. Nonaka and H. Takeuchi (1995) noted that synthesis of these two opposing management approaches to be found in the middle-up-down management process. In middle-up-down management, top management gives the conceptual framework and support and encourage, recognize, and reward openness, systemic thinking, and creativity (Nonaka, 2007). Middle-up-down management is based on teamwork where teams are largely autonomous in interpreting the strategy of top management with top management acting as a catalyst more than a leader: *"A more equivocal vision gives employees and work groups the freedom and autonomy to set their own goals. This is important because while the ideals of senior management are important, on their own they are not enough. The best that top managers can do is to clear away any obstacles and prepare the ground for self-organising groups and teams. Then it is up to the team to figure out what the ideals of the top mean in reality"* (Nonaka, 2007, 104).

A comparison of these three approaches and their key characteristics, which is adapted from I. Nonaka and H. Takeuchi (1995), can be seen in Table 1:

Table 1

**A comparison of the three management approaches and their key characteristics**

	<b>Top-down</b>	<b>Bottom-up</b>	<b>Middle-up-down</b>
Agent of knowledge creation	Top management	Entrepreneurial individual	Team
Top management role	Commander	Sponsor/mentor	Catalyst
Middle management role processor	Information entrepreneur	Autonomous leader	Team
Accumulated knowledge	Explicit	Tacit	Explicit and tacit
Knowledge storage databases	Computerised	Individuals knowledge	Organisational base

According to P.C. Murray (1997), there are two typical strategies, in which these management approaches manifest themselves. Business managers (and knowledge management consultants who sell services to them) tend to adopt a top-down viewpoint of knowledge management. They are concerned with what managers have to know and do in order to push their organisations toward leveraging corporate intellectual assets. By contrast, technologists tend to focus on knowledge sharing and re-use, on enabling technology that can be used by all members of an organisation. They believe the right tools will make good things happen and that explicit knowledge, properly modelled, should be our primary concern. The benefits will be spread through the organisation by means of the ripple effect, often unpredictably and even chaotically.

### *3. People-centred and technology-centred approaches*

The first approach is the management of people known as human resources. People in this field probably have their education in philosophy, psychology, sociology, and/or business management. They are primarily involved in assessing, changing and improving human individual skills and behaviour. To them knowledge is a process (supporting the subjective nature), a complex set of dynamic skills and know-how that is constantly changing and being adapted. This approach is relatively old and is not growing so fast.

According to K.E. Sveiby (2002), the second approach is the management of technology. People in this field tend to have been educated in computer science and/or information science. They are primarily involved in construction of information management systems (including organisation and retrieval of information from the system), artificial intelligence and implementing groupware solutions amongst others. Knowledge is seen as an object (supporting the objective nature of knowledge) that can be identified and handled in these systems. This approach is relatively new and is growing relatively fast due to developments in IT.

Each of these management approaches can fall on either the individual or organisational level. The technology-centred approach focusses on structural intellectual capital in terms of process management (embedded knowledge) and information management (recorded knowledge) whereas the people-centred approach focusses on human intellectual capital (people management).

Having analysed these two approaches (strongly coupled to the subjective versus objective nature of knowledge) the authors would like to stress that the people are the primary source of knowledge and technology is the secondary source. However, technology is necessary for the orderly storage, retrieval, and sharing of knowledge.

### *Principles of knowledge management*

Speaking about the principles of knowledge management, R.O. Barclay and P.C. Murray (1997) identify three approaches to organisational knowledge management: the mechanistic, cultural or behavioural, and systematic. G. Probst with colleagues identify the following as the core processes of knowledge management, which also guide its principles: knowledge identification, knowledge acquisition, knowledge development, knowledge sharing and distribution, knowledge utilisation, knowledge retention (Probst, Raub, Romhardt, 2000).

A.M. Kaniki and M.E.K. Mphahlele referred three kinds of approaches to effect knowledge management (Kaniki, Mphahlele, 2002, 10 – 11):

- the mechanistic approach to knowledge management focuses on the application of technology and associated resources as tools for facilitating access to information, and helps organisations achieve more with less;
- the cultural/behavioural approach, on the other hand, emphasises innovation and creativity, which are important for learning organisations; the introduction of new ways of doing things, of new experiences that force organisations and communities to adopt a holistic view of their relationships with the environment, further influences community and organisational culture;
- the systematic approach uses systems thinking, which incorporates all aspects of knowledge management to ensure continuous evaluation and a sustainable process; this requires the recognition and utilisation of the various cross-disciplines to develop knowledge management systems and processes.

The level and amount of knowledge that an individual, organisation or community possesses at a particular time cannot resolve or facilitate all the problem-solving and decision-making processes encountered in the course of the 'knower's' existence. The implications are that an individual or organisation must be continuously learning, acquiring new knowledge and generating new knowledge, and be aware of who owns appropriate knowledge that is relevant to particular situations. Based on this assumption, the emphasis in today's environment is on learning how to learn and/or changing organisations into learning organisations.

G. Probst (Probst, Raub, Romhardt, 2000) argue that it is vital that knowledge be shared and distributed within an organisation (and community) so that the whole community can use isolated information or experience. Knowledge sharing is the essence of how we bring innovations to change the way the world works and lives. If learning organisations understand this, knowledge will be volunteered without doubt (Kaniki, Mphahlele, 2002). According to D. Snowden (1999), without trust among the members of the community or organisation, it will be impossible to tap the tacit components of the community or organisation's intellectual assets. The key issue is to identify the factors that motivate people within an organisation or community to share their intellectual assets.

Analysing some conceptions about knowledge management, T.H. Davenport (1996) identifies ten principles that govern or can guide knowledge management processes in organisations.

- Knowledge is assets that must be identified, captured, and have value added to it. Knowledge management is an expensive process, which involves knowledge capture and adding value through editing, repackaging and so on. It also involves developing knowledge categorisation through processes such as classification and developing and applying IT infrastructure for storage and distribution.
- Knowledge management is interdisciplinary and aims at dealing with cross-disciplinary problems. Therefore, the effective knowledge management requires a number of solutions involving people and technology. Today's problems are often complex, requiring complex solutions with ideas adapted from several sources, disciplines and communities. No one individual or organisation possesses all the required knowledge and skills.
- Knowledge is associated with power, money and success. Whoever has the know-how for doing something better is bound to 'sell' that knowledge for profit, recognition or simply respect. Therefore, managing knowledge is highly political because it involves determining who has access to and can utilise and derive benefits from the valuable knowledge resources.
- Like every resource in an organisation, knowledge management requires knowledge managers. Key resources in organisations require managers to facilitate their generation, distribution and use. If not appropriately managed, resources can be misused and thus depleted. Collecting and categorising knowledge, establishing knowledge-oriented technology infrastructure and monitoring the use of such knowledge are some of the tasks that knowledge management managers should perform.
- A key element of knowledge management is knowledge sharing within a given environment or community. However, in order to share knowledge effectively for the benefit of the organisation, and its members, and to facilitate productivity, knowledge maps must be generated. Maps of knowledge assets show where and how particular knowledge assets are stored in the organisation.
- Although knowledge management emphasises sharing knowledge, sharing and using knowledge are often unnatural acts. People often keep knowledge to themselves in order to preserve their power and prestige. Organisations have to identify and use effective motivators and motivating techniques to

facilitate knowledge sharing. At the same time, ‘knowers’ and generators of knowledge must be assured that they will be appropriately compensated, rewarded and/or recognised for their knowledge.

- Knowledge management means improving knowledge work processes. The organisation must facilitate knowledge generation, utilisation and transfer by putting in place appropriate policies, resources and facilities. It is complex and requires financial, human and material resources.
- Information and knowledge in themselves are not useful unless they are applied to specific situations. Access to knowledge, while important, is not sufficient. To be useful and profitable, knowledge must be applied.
- Knowledge management never ends: knowledge generation, its utilisation and transfer are necessary because new problems and situations arise and require new solutions. The need for new knowledge and its application changes with time; therefore, there is no stage when knowledge is fully managed.
- Knowledge management requires a knowledge contract: human beings are naturally competitive creatures and strive to improve their living conditions. Humans have recognised that money, time, effort, and other resources invested in the creation and/or development of intellectual property or knowledge must be recognised and rewarded. In addition to legal frameworks and laws, human beings depend on conventional practice, moral values, judgement and obligations or ethics in their interaction with one another and in the protection of their rights and those of the community. Therefore, it is important to identify who owns what and has the right to use an individual’s knowledge.

#### ***Application of knowledge management principles at local community level***

A number of knowledge management activities and initiatives are in place or are taking shape internationally, nationally and regionally. However, it is important to look at the local or community levels and ask the questions: How applicable are knowledge management principles at local community level? Should the knowledge management processes for managing indigenous knowledge in fact be similar to business processes?

Some of the knowledge management principles can be applied to manage certain aspects of indigenous knowledge. Owing to the nature of indigenous knowledge not all of it can be managed like scientific knowledge. In traditional communities, intellectual property is protected through trust and not necessarily through legal frameworks.

E.C. Wenger and W.M. Snyder (Wenger, 1998; Wenger, Snyder, 1999) use the term ‘communities of practice’, which are groups of individuals with shared interests that come together in person or virtually to tell stories, to share and discuss problems and opportunities, discuss best practices, and talk over lessons learned. Communities of practice emphasize the social nature of learning within or across organizations.

The organization and maintenance of communities of practice is not a simple or easy undertaking. As P. Hildreth and C. Kimble (2004) point out, there are several key roles to be filled, which she describes as manager, moderator, and thought leader. They need not necessarily be three separate people, but in some cases, they will need to be.

For a community of practice some questions that need to be thought about are:

- Who fills the various roles of manager, moderator, and thought leader?
- How is the community of practice managed?
- Are postings open or does someone vet or edit the postings?
- How the community of practice is kept fresh and vital?
- When and how (under what rules) are items removed?
- How are those items archived?
- Who reviews the communities of practice for activity?
- Who looks for new members or suggests that the communities of practice may have outlived its usefulness?

Knowledge sharing and learning within communities are systematic and sophisticated processes. However, this would require many different skills and a great deal of interaction between local communities, the government and knowledge experts. Mutual trust and a working together are very important for the common good among the partners. Y. Merali (2000) uses a metaphor of an ecological community to define a knowledge management community: “*In knowledge management, a community of practice is defined as an interdependent group of people inhabiting the same information space,*

*interacting with each other through resources and other relationships*” (Merali, 2000, 80-81). He identifies three elements that are necessary to develop such communities: a) a clear identity of the community and what it stands for; b) a sense of belonging and reciprocal attachment among members of the community; c) the concept of self and non-self, that is a shared sense of who and what the parts of the community lie within it and what lies outside.

It is obviously that in the interaction of local communities with the global community there is a need to apply a number of principles for managing indigenous knowledge in order to preserve it, utilise it effectively and protect it. These are the challenges we face and need to address if indigenous knowledge is to be managed effectively for the benefit of all.

We would like to stress that indigenous knowledge is extremely valuable and is increasingly becoming even more valuable to our communities, because the complex problems we are facing today require complex solutions that arise from the utilisation of all forms of knowledge, including indigenous knowledge. T.H. Davenport supposes that most knowledge management principles can be used to manage indigenous knowledge; however, several issues need to be addressed for indigenous knowledge to be effectively managed for the benefit of all. One of the principles of knowledge management, that the management of indigenous knowledge will follow a continuous cycle rather than being a one-off process, is most important for knowledge management in local community: as people share and use knowledge, the categories of required knowledge will change according to individual needs.

## Conclusions

Analysing mentioned conception, we would like to emphasis the most important aspects of knowledge management:

- the core objective of knowledge management is getting the right information to the right people at the right times to help people share experiences and insights, and to improve the productivity of teams;
- knowledge management involves educating people about the techniques of creating, sharing and using knowledge within and outside their community or organisation; in this context it is necessary to construct unique knowledge management environments using both human and technological resources in a complementary way;
- organisations should invest in developing knowledge sharing, distribution techniques and best practices; the application of IT in knowledge networks is crucial in modern society;
- knowledge cannot be directly managed; it can only be indirectly managed through the carriers of the knowledge - the people (through human resource management), the technology (through information management and information technology management) and the interaction between them (information flows and communication). A learning community and organisation build collaborative relationships in order to draw strength from the diverse knowledge, experience, capabilities and ways of doing things that people and communities in general have and use.

Knowledge management is a transdisciplinary process and aims at dealing with cross-disciplinary problems; the synthesis arising from Western and Eastern paradigms would be the ideal management approach: this synthesis represents the paradigm shift that can take place in management to accommodate the subjective nature of knowledge. Nowadays a balance of people-centred and technology-centred approaches is the ideal and each organisation must determine where this balance lies in their situation.

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## Evaluation of Awareness and Implementation of Environmental Education in Teachers of Secondary Vocational Schools

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**Abstract:** Environmental education has its own specific significance at secondary vocational schools if it is directed to the future professional orientation of graduates. For the graduates of vocational schools with a focus on agriculture, forestry and related fields, the rate of professional responsibility towards the environment is high. General framework of environmental issues of vocational education is declared in so called Framework Educational Programme by the contents of the cross-curricular theme “The Human Being and the Environment”. The aim of the paper is to evaluate teachers’ awareness and the implementation of the environmental education programme at their schools and to specify competencies for areas of implementation of environmental education at vocational schools with a focus on agriculture, forestry and related fields of study. The target group consisted of teachers who were completing their qualification as a part of complementary pedagogical studies to become teachers at secondary vocational schools. To explore the outlined issues a questionnaire survey was conducted in the academic years 2015–2016 and 2016–2017. The results of the survey have been used to innovate the contents of the subject Environmental Education which is included in the curriculum of the study programme Specialization in Pedagogy for the fields of study focused on “Teaching of Vocational Subjects at Secondary Vocational Schools and Training Institutions” and “Teaching of Practical Vocational Training”, namely to clarify particular pedagogical categories in relation to environmental propaedeutics and in relation to the significance and objectives of environmental education.

**Keywords:** environmental education, vocational schools, evaluation, teachers, questionnaire survey.

### Introduction

Nowadays, environmental problems are experienced worldwide. Solving them is only possible with people, who are knowledgeable about environmental issues, aware of such problems and motivated to solve them, respecting the rights of all living things and acting in accordance with the economic use of resources (Kandir, Yurt, Cevher-Kalburan, 2012; Ozsoy, 2012). To ensure environmental literacy in future generations requires educators who are equipped with knowledge, skills and commitment (Pe’er, Goldman, Yavetz, 2007; Karatekin, Imat, 2014). In the Czech Republic, environmental education at secondary vocational schools is provided on the basis of the Methodological Instruction of the Ministry of Education, Youth and Sports defining the fundamental concepts and, among other things, characterizing the role of school Coordinators of Environmental Education and their activities, as well as the conditions and means for implementation of environmental education. At secondary schools, environmental education should be based not only on the above mentioned Methodological Instruction and on the regional concepts of environmental education, but especially it should be a part of school education programmes which are created by schools on the basis of legally binding Framework Educational Programmes for individual fields of study. According to the State Programme of Environmental Enlightenment, Education and Public Awareness and Environmental Consultancy for the years 2016–2025 (Ministry of the Environment..., 2014) its general objectives are to develop the competencies necessary for environmentally responsible behaviour which is understood in personal, civic and professional spheres as a responsible environmental treatment based on a free choice of the individual. Environmental education itself should prepare and motivate the individual to do this.

Concerning *the implementation of environmental education at secondary vocational schools*, the general objective of environmental education has been divided into several areas or categories of aims as described by a working group of the Ministry of the Environment of the Czech Republic. The document of the Ministry of the Environment publishes five target areas of general content-defined (Broukalova, Novak, 2011): *the relationship to nature, the relationship to the place, ecological processes and rules, environmental problems and conflicts, and readiness to act in favour of the environment*. Within these categories, it is necessary to define the competencies to which environmental education and raising of

public awareness should focus. In our case specifically it is necessary to create them for the sphere of vocational education with a focus on agriculture, forestry and related fields of study.

The above listed categories should be reflected in the educational aims of school programmes of environmental education. According to the Ministry of Education, Youth and Sports, to ensure Environmental Enlightenment, Education and Public Awareness, the headmaster of the school assigns the position of a Coordinator of Environmental Education by a teacher who has completed a qualifying course (Ministry of Education..., 2015). The responsibilities of the Coordinator of Environmental Education include, above all, to ensure that the headmaster and other teachers are informed about the significance of environmental education, to create a school education programme for environmental education, to organize and direct its implementation, or to establish cooperation with centres of environmental education. The implementation of environmental education at schools as such should be based on a developed programme which is to be a part of the school concept. The school should enable the coordinator further education in this issue. Further education is also appropriate for other teachers since if teachers are effectively trained they can effectively change future generations' environmental attitudes (Ozsoy, 2012). All these measures are related to equipping schools with the necessary means to implement the environmental education programme and gradual ecologisation of school operations.

The extent to which the aforementioned plans are being implemented at schools is evidenced by a number of meetings of coordinators of school programmes of environmental education. The plans can only be realized on the willingness of the teachers to make conscious targeted cooperation with the coordinator, and as well it depends very much on the position of the coordinator in the team of teachers.

As regards *the content of environmental education at secondary vocational schools*, environmental education should approach the environment in a comprehensive way - both natural and man-made, it should be interdisciplinary, and it should pay attention to global, regional and local aspects and present and future situations. Such an education should deal with environmental development and growth from the environmental point of view, it should lead to active participation in the prevention and solution of environmental problems, and it should emphasize the following: *interest, feelings, knowledge, skills, attitudes and participation*.

Educational aims within the Framework Educational Programme for environmental education are implemented at secondary vocational schools using the cross-curricular theme "*The Human Being and the Environment*" (Svecova, 2012). The result of the implementation is to be a student's understanding of the links between the various influences in the environment and human activities, impacts on health and life, understanding of the interrelationships among local, regional and global environmental problems, a student's understanding of the context among environmental, economic and social problems and understanding of the importance of respecting the principles of sustainable development for the future. The cross-curricular theme "*The Human Being and the Environment*" also contributes to the formation and development of key and professional competencies.

*Key competencies* are formed by the students being encouraged to express themselves, to argue, to present their opinions and attitudes to environmental issues. At the same time, to respect the opinions of others, to be able to evaluate, to use information technology resources and to be able to process information. They are led to involvement in the creation and protection of the environment. *Professional competencies* are acquired by vocational school students by learning to consider the use of technologies and working practices due to their possible impacts on the quality of the environment and by forming their awareness of their own professional responsibility towards the environment. Respecting the principles of sustainability in their field means to act economically and responsibly towards the environment and human health (Dytrtova, Bucharova, Husova, 2006).

The implementation of environmental education requires, in addition to securing the educational content, a new teacher's approach to teaching. It is necessary to use interdisciplinary contexts and the way of teaching based on the stimulation of students' interest by appropriate motivation and students' involvement in the educational process by the integration of activation methods (Esa, 2010). According to R. Dytrtova, V. Bucharova and Z. Husova (2006) it is possible, in general, to characterize the implementation of environmental education as a process giving preference to the systemic thinking of students. Besides cognitive learning it also integrates experiential learning with an emphasis on emotional and aesthetic perception of the environment and environmental issues. It is a process focused

also on students' activity in the field under local conditions and responsive to the state of the environment in specific situations.

As seen from the above mentioned, it is necessary to integrate the environmental propaedeutics into the preparation of teachers for their future profession. In our case these are complementary pedagogical studies to become teachers at secondary vocational schools. Especially, the methods and forms of teaching that teachers could apply in their practice in order to activate students in the way of the fulfilment of the mentioned educational aims are essential. In practice, this means involving teachers in the planning of school projects, the creation of educational trails, practicing interactive methods and forms of teaching (problem teaching, debating and staging methods, experiments, field exercises, and so on), and to show teachers how to use the internet in the context of environmental education and how to establish cooperation with centres of environmental education (Dytrtova, Bucharova, Husova, 2006; Kandir, Yurt, Cevher-Kalburan, 2012; Sadik, Sadik, 2014).

The aim of the paper is to evaluate teachers' awareness and the implementation of the environmental education programme at their schools and to specify competencies for areas of implementation of environmental education at vocational schools with a focus on agriculture, forestry and related fields of study. The target group consisted of teachers who were completing their qualification as a part of complementary pedagogical studies to become teachers at secondary vocational schools. To explore the outlined issues the questionnaire survey was conducted.

## Methodology

In the context of the assessment of environmental literacy of students and teachers of secondary schools it is possible to draw inspiration from the outcomes of the research already realized both in the Czech Republic and abroad (Pe'er, Goldman, Yavetz, 2007; Harraway et al., 2012; Svecova, 2012; Jowett et al., 2014; Karatekin, Imat, 2014; Stevenson et al., 2014; Cincera, Johnson, Kovacikova, 2015; Cincera et al., 2017). There have been developed methodologies at the Ministry of the Environment of the Czech Republic according to which the environmental literacy of different categories of respondents can be followed in a research survey.

We were interested in the above outlined issues at secondary vocational schools. *The target group* comprised teachers completing their qualification as a part of complementary pedagogical studies to become teachers at secondary vocational schools. Actually, this meant that they were students of the Institute of Education and Communication of the Czech University of Life Sciences Prague of a part-time form of study of bachelor study programme "Specialization in Pedagogy", in the field of study focused on "Teaching of Vocational Subjects at Secondary Vocational Schools and Training Institutions". Of the total number of 156 students (vocational subjects teacher candidates) interviewed, 37.18 % (N = 58) declared that they worked in the role of the teacher, with the length of teaching practice from 1 to 34 years (mean 8.38 years). The remaining 98 students stated that they had not yet taught and therefore they had no teaching experience. Thus, *the sample of the exploratory survey consisted of 58 teacher-respondents*.

*An anonymous questionnaire* was used as a method of data collection. An online questionnaire survey using Google Forms was conducted at the beginning of winter terms of the academic years 2015–2016 and 2016–2017 to find out teachers' awareness of the implementation of the environmental education programme at the schools they work. The questionnaires were filled in by the respondents in the presence of the researchers at the very beginning of the Environmental Education course in order to ensure 100 % response rate of the responses and to avoid distortion of the data due to influencing the knowledge and attitudes of the respondents while teaching the course during the semester. Educational technologies of the institution were used for this purpose.

The questionnaire concerned both the application of environmental awareness of the teachers in their teaching and their views on environmental matters. Given the focus of this paper, the following three questions were selected of the ten open-ended questionnaire items:

- *characterize environmental education with your own words;*
- *describe how you implement environmental education in teaching your subject, if you do so;*
- *indicate if the school you are working at has a Coordinator of Environmental Education, and what his/her tasks are.*

The data were analysed and processed regardless of the gender, age and length of teaching practice of the respondents. Summarization of the data enabled an insight into the investigated issue and subsequently to interpret the findings detected. Representative opinions and recommendations of the teachers that emerged from answers to given questions and suggestions are presented in the following Results and Discussion section.

## Results and Discussion

### *Specification of competencies of target areas focusing on agricultural, forestry and related fields*

The five target areas of implementation of environmental education of the general content were provided by the document of the Ministry of the Environment (Broukalova, Novak, 2011). As for vocational education, in our opinion based on the statements of respondents and on our long-standing experience, the realization of environmental education at secondary vocational schools focused on agricultural, forestry and related fields of study could lead to the following specific profiling of the graduates:

*The relationship to nature* is essential for graduates of vocational schools with a focus on agriculture, forestry and related fields for the performance of their profession. Due to the permanent contact with nature, the acquired sensitivity to changes in the natural environment and the clarity of one's own attitude in relation to natural values is assumed.

*The relationship to the place* and the sense of responsibility is assumed in the graduates of vocational schools due to the knowledge of the professional and often also the private sphere of activities of the graduates. This relationship should be professionally based on the knowledge of the regional landscape, which is connected with the consciousness of belonging to the place and with the sense of responsibility for the quality of being in the given locality.

*Ecological processes and rules* are a part of the content of education of scientifically professional orientation of vocational schools. It is therefore possible to assume the professional awareness of the graduates of the mentioned study specializations.

For *Environmental problems and conflicts*, students can be prepared by means of staging methods, problem and project teaching, and the like. The result maybe one's own required engaged solution to the problem and its defence, and preparation for professional cooperation.

*The readiness to act in favour of the environment* is very closely related to the profile of the graduate of vocational schools. In particular, graduates should be able to assess the future impact of their professional acting and they should be aware of their own influence on the prevention and solution of environmental problems.

### *Evaluation of secondary vocational school teachers' awareness of environmental education*

The other section of the questionnaire contained one of the questions dealing with *teachers' awareness of environmental education*. The question was formulated as follows: *Characterize environmental education with your own words*. Looking at the results, it is satisfying that approximately 86 % (N = 50) of the teacher respondents were able to answer the question in a meaningful way and furthermore that they outlined the essence of environmental education. Most of the expressions within the respondents' statements concerned the following examples relating to environmental education: *environment, education, nature, relationship, protection, behaviour, man, co-responsibility, waste, treatment, responsibility, state, ecology, friendly, access, care, thoughtful, prevention, quality, savings and health*.

Examples of representative subjective statements of the respondents are as follows:

*"Environmental education deals with the relationship of pupils to the environment, to nature, to their surroundings and to the whole of the Earth. Its purpose is to make pupils aware of the environment, nature and a positive attitude towards them."* [Respondent 5]

*"Ecological education."* [Respondents 12, 21, 43]

*"It is upbringing towards the harmony of man with the environment. It should serve to understand the contexts and complexities of human and environmental relationships."* [Respondent 18]

*"I understand environmental education as an educational effort that aims to increase people's co-responsibility for the state of the environment."* [Respondent 25]

*“Environmental education is a subject dealing with a relationship of man to nature and the environment. It is a great inspiration for me to protect the environment and to care for the cleanliness of the environment.”* [Respondent 32]

*“It is an education that aims to lead pupils to a responsible environment. I can think of topics such as energy saving, renewable and non-renewable resources, the ozone hole, climate change, or environmental pollution.”* [Respondent 34]

*“It is learning about nature, about the relationship among nature and humans and other organisms, knowledge of minerals, sources of livelihood for man.”* [Respondent 56]

From the statements it can be concluded that the majority of teachers have a satisfactory awareness of what environmental education is and it can be assumed that teachers have met with environmental education at their secondary vocational schools or they are convinced of its importance.

### ***Evaluation of implementation of environmental education programme in teachers of secondary vocational schools***

Unlike the previous section of the questionnaire, which found out the theoretical awareness of secondary vocational school teachers, the following section focused on so-called *activity component (actions) in environmental education*. Here, the question was as follows: *Describe how you implement environmental education in teaching your subject, if you do so*. It was found that 75.86 % of respondents (N = 44) implemented environmental education in teaching their subjects. On the other hand, up to one quarter of the respondents do not engage environmental education in their subjects, as in the case of e.g. respondents 12 and 57, which is quite an alarming finding. Others, for example, mentioned the use of ecological approaches in their fields, the use of documentary films, the sorting of waste, visits of ecological centres, excursions, the economical use of foodstuffs, the ways of oil disposal, the welfare of farm animals, discussions with specialists in teaching, and the like. Below there is a selection of representative teachers' expressions with relation to their specialization.

*“I point out ways of organic growing without pesticides.”* [Respondent 3, Horticulture]

*“I teach pupils how to treat nature, in order to continue to provide us with the best, whether crops in the fields, as well as animal production.”* [Respondent 10, Farmer]

*“I do not realize it, I do not think I could integrate it into teaching my subject.”* [Respondent 12, Zoology]

*“I teach about organic food and natural medicines.”* [Respondent 16, Human nutrition]

*“Every Friday we take out sorted waste, and we discuss something about the protection of the environment with the students.”* [Respondent 20, Joinery and carpentry]

*“We use environmentally friendly materials and paints. We recycle, we use waste material to produce decorations, we sort waste. In the school education programme there is a cross-curricular theme *The Human Being and the Environment*.”* [Respondent 25, Services - arranger]

*“Yes, I do environmental education, since my pupils are working with metals, and it is necessary to throw metal scrap into the designated containers (separating common metals from the coloured ones), and the common waste must also be sorted (paper, plastics).”* [Respondent 28, Blacksmith and locksmith work]

*“In greenery, we draw attention to the possibilities of using environmentally friendly approaches to cultivation and thereby reducing the volume of pesticides used.”* [Respondent 33, Horticulture]

*“I encourage my students to save water, electricity.”* [Respondent 35, Repair of agricultural machinery]

*“We sort waste, we do not waste materials used during practical training.”* [Respondent 42, Arrangement of plants]

*“I do not use it directly in my subjects.”* [Respondent 57, Forestry]

*“We use wood material, we compost organic waste.”* [Respondent 58, Horticulture]

Very brief answers of the respondents to the question related to their own realization of environmental education indicate their significant reserves. In such teachers it will be necessary to guide them to a willingness to analyse and think about the content of the subject they guarantee, to look for contexts related to environmental issues, or to use interdisciplinary contexts.

### ***Coordinator of Environmental Education and his/her tasks***

In the last section of the questionnaire the teachers were asked to *indicate if the school they were working at had a Coordinator of Environmental Education, and what his/her tasks were*. When looking at teachers' statements it can be found that practices at secondary vocational schools vary, probably according to the concept of their School Education Programme. Respondents' answers showed that 27.59 % of schools have an Environmental Education Coordinator, 37.93 % of schools do not have them and 34.48 % of the respondents stated they did not know. From the latter figure it is evident that about a third of the respondents do not have an overview or are not interested in school matters at all, which is not a positive finding. Similarly, the views of teachers on the functions and tasks of coordinators vary, too. In summary, the respondents perceive the coordinator as a teacher who, in addition to teaching activities, together with the school management draws up an environmental education plan, monitors its implementation, contacts other schools and different organizations, encourages environmentally friendly operation of the school, and organizes school waste sorting. However, such a coordinator ensures educational actions aimed at raising a responsible relationship to the environment. Particular statements of the respondents are presented below.

*"We do not have a coordinator. They should provide educational events; encourage environmentally friendly operation of the school, collecting paper, PET bottles, collecting herbs, and others."* [Respondent 11]

*"Our school does not have an environmental education coordinator. They should organize collections of paper and waste sorting at school or organize environmental events."* [Respondent 13]

*"We do not have an EE coordinator. The coordinator should create an EE school programme and he should update it regularly. He should coordinate and implement EE events at school (ecological projects on important days, lectures) and link environmental education to all possible subjects so that the children learn about it as much as possible."* [Respondent 14]

*"Our school does not have a Coordinator for Environmental Education. My idea is that he or she should spread awareness amongst pupils about behaviour in nature and also about recycling."* [Respondent 16]

*"Yes. We have a coordinator. He provides training for teachers and pupils in occupational health and safety, prevention from smoking and drugs. He takes care of school facilities and surroundings."* [Respondent 20]

*"A Coordinator of Environmental Education? I hear for the first time about this position, and I cannot imagine what they should do. Maybe they should organize various events such as excursions, Earth Day, workshops. Of course, they should also teach."* [Respondent 23]

*"Yes. We have the coordinator. His job is to coordinate environmental education, as the title suggests. He should integrate cross-curricular themes into educational programmes, develop pupil competencies, and promote active engagement of pupils in environmental care."* [Respondent 26]

*"Unfortunately - our school does not have an EE coordinator. His or her task would be to disseminate environmental education - e.g. in the form of billboards, leaflets, lectures, and mainly by introducing practical things that will help to respect the principles of ecological behaviour and awaken the pupils' efforts to get involved."* [Respondent 35]

*"We do not officially have the position of a coordinator at school, but a natural science teacher is actually doing this job. Even, this school year it is me. I plan various talks, lectures, visits to the topic of education to environmental protection. I organize waste sorting."* [Respondent 44]

*"We have an Environmental Education Coordinator, coordinating environmental activities. She supervises resource efficiency. She also participates in the formation of strategy and organization"*

*with an emphasis on the ecological side of teaching. She cooperates with the control authorities for the environment.” [Respondent 50]*

The statements illustrating respondents' views on the role of the Coordinator of Environmental Education assume the quality of environmental propaedeutics at individual schools. Some responses are based only on respondents' view of the position of such a coordinator, as many schools do not have any coordinator. Our findings are consistent with the statement of M. Svecova (2012), who reported from her own experience, that only less than half of vocational schools have a Coordinator of Environmental Education.

## Conclusions

The results of the exploratory survey show that:

- concerned it can be assumed that teachers have met with environmental education at their secondary vocational schools or they are convinced of its importance;
- for teachers who do not implement environmental education in their subjects or are not sure how to integrate it into their teaching it is essential to support and guide them to a willingness to analyse and think about the content of the subject they guarantee, to look for contexts related to environmental issues;
- as for the function of the Coordinator of Environmental Education the situation at secondary vocational schools has not improved significantly in recent years; in our survey, the presence of the coordinator at secondary vocational schools was confirmed by less than a third of the respondents; not everyone had a clear idea of the role of such a coordinator;
- results of the analysis of individual responses of the teachers contributed to the innovation of the course Environmental Education which is a part of the curriculum of the study programme Specialization in Pedagogy for the fields of study focused on “Teaching of Practical Vocational Training” and “Teaching of Vocational Subjects at Secondary Vocational Schools and Training Institutions”, especially to clarify individual pedagogical categories in relation to environmental propaedeutics and to the importance and objectives of environmental education;
- in the context of teacher training, it is necessary to show examples of optimal environmental education school programmes and to deal with the possibilities of application of the cross-curricular theme “The Human Being and the Environment” into the content of vocational and practical subjects;
- it is desirable to include teaching methods and forms in teacher training to help teachers motivate and activate students to enhance their professional and personal pro-environmental orientation;
- it is advisable for headmasters to recommend Coordinators of Environmental Education specialization studies reflecting the focus of their workplace (secondary vocational schools).

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## Expertise as a Research Method in Education

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**Abstract:** Scientific approach, selection of a method or several methods corresponding to the research aim and their suitability to or compliance with the decisions to be taken regarding the solution of problem, as well as respecting the principles of research ethics is a guarantee of the research significance and successful solution of problems under research. The expert method is widely applied not only in social sciences and psychology, but also in education science. It is considered to be one of the most appropriate for collecting, analyzing and evaluating of information, as well as for forecasting, when it is necessary to take responsible decisions in relation to innovations in education, including pedagogical process. The method by means of which obtained results are based on the opinions and assessments of competent experts is called an expertise, an expert's opinion or the method of expert assessment. *The aim of the research:* to substantiate theoretically the expertise as a research method in education science. The article is the presentation of theoretical research results obtained as a result of scientific literature analysis and evaluation, as well as scientific research reflection of authors in the field of research methodology.

**Keywords:** expertise, education science, research method, university education.

### Introduction

Scientific approach, selection of a method or several methods corresponding to the research aim and their suitability to or compliance with the decisions to be taken regarding the solution of problem, as well as respecting the principles of research ethics is a guarantee of the research significance and successful solution of problems under research.

Many researchers conduct research in pedagogy resulting in new concepts, models, innovative education strategies, education methods or training programmes and in the improvement of pedagogical process, teaching materials with new content, which are important to put into practice before starting their implementation.

Usually the latest findings are entitled to be implemented into practice in an experimental way. However, there are situations when a pedagogical experiment, due to the fact that it involves participants of the research, namely, schoolchildren, students and adults who learn, store positive educational experience, acquire knowledge, skills and competences, would not be appropriate to use as the research method to solve the existing research problem, implement innovative ideas and obtain research data because of additional difficulties or obstacles. In addition, the results of a pedagogical experiment are not always predictable.

Unfortunately, education is a scientific discipline of human activities, where introduction of incompetent, scientifically improper and voluntary decisions influence the life of many people and their learning experience which later might influence their professional and personal development negatively, including the system of attitudes and values, motivation to study and future plans, professional activities and a career on the whole. To avoid such practices, a reflexive method of a researcher himself/herself is being used before the initiating changes. However, not always competence and accumulated experience of one person might be used as the basis for adopting serious decisions. Therefore, an opinion and competence of several experts is necessary. It is even better if there is unanimous opinion among experts. In such situations it is recommended to use for approbation of innovative approach as the research method in order to analyse its implementation and application, as well as forecast the results.

The expert opinion method provides validity and reliability of the research when it is necessary to obtain evidence of the research (Bogner, Littig, Menz, 2009; Cohen, Manion, Morrison, 2007; Cuhls, 2005). Therefore, the results of the expertise, i.e., evaluation and opinion of competent and experienced experts on the subject matter becomes the basis for adopting serious decisions, including implementation of innovation recommended by a researcher in order to obtain the necessary results.

*The aim of the research:* to substantiate theoretically the expertise as a research method in education science.

## Methodology

The research methods used in the article: 1) study, analysis and evaluation of scientific literature in the field of research methodology; 2) reflection of authors' academic/pedagogical and research experience.

Theoretical approaches are based on the following scientific findings about expertise (Bogner, Littig, Menz, 2009; Dexter, 1970; Dexter, 2006; Meuser, Nagel, 2009; Lewthwaite, Nind, 2016; Muskat, Blackman, Muskat, 2012; Protasevich, 2014; Severin, 2014).

## Results and Discussion

The expert opinion method became widely used in the second half of the 20th century. M. Kendall (Kendall, 1948) had a significant impact on the development of this theory by publication of his monograph dedicated to the use of the method of correlation ranges in the analysis of experts' opinions. The expert method is widely applied not only in social sciences and psychology, but also in education science. It is considered to be one of the most appropriate for collecting, analyzing and evaluating of information (Bogner, Littig, Menz, 2009; Lewthwaite, Nind, 2016; Muskat, Blackman, Muskat, 2012; Protasevich, 2014; Rieger, 1986; Severin, 2014). For example, the frequency of the application of the method in the empirical research in Russian doctoral theses in pedagogy accounts for 38.4% out of all methods (Protasevich, 2014).

The expert opinion method is used in the sociological and pedagogical research to carry out the following tasks (Bogner, Littig, Menz, 2009; Helmer, 1983; Kaynak, Bloom, Leibold, 1994; Waissbluth, De Gortari, 1990):

- create forecasts if the information about the object of the research is not available or it is not exact;
- create forecasts if the forecasting object is new and there is not any equivalent available;
- describe in detail main requirements of the research method, explain the procedure of the research, select methods and types of obtaining and processing data;
- evaluate validity of surveys and adjust surveys at a large scale;
- analyse in detail the results and forecast changes of psychological and pedagogical phenomenon of the research;
- confirm and revise data obtained by means of other methods;
- clarify factors influencing development of the object of the research included in the models;
- analyse the results, particularly, if there is an opportunity to have different interpretations.

The method by means of which obtained results are based on the opinions and assessments of competent experts is called an expertise, an expert's opinion or the method of expert assessment. Scientist S.N. Severin (Severin, 2014) claims that a special attention in modern pedagogical science is paid to ***the forecasting and projecting of the research***: the research should be based on the well-grounded methodology. Methodological reflexion and the research expertise before the actual study allows to determine its degree of quality and effectiveness, heuristic potential, novelty, theoretical and practical value of the research in theory and in practice. Undoubtedly, the diagnostic evaluation of the result by means of expertise allows to regulate and correct the pedagogical process as well as behaviour and actions of its participants, especially in the current pedagogical space, where significant changes have happened with the appearance of various education levels, programmes, standards and technological variables. Expertise is unavoidable in educational innovation (in any of its introduction and implementation stages).

The expert opinion method as the research method is based on, firstly, experts' competence and experience (*Latin – expertus – experienced*). Austrian scientist B. Littig (Littig, 2011) defines the term *expert*. Scientist suggests that mostly *professional experts* are in the centre of the scientific interest.

A. Bogner and V. Menz (Bogner, Menz, 2009) identify three types of *experts'* definitions: ***voluntary or based on experience, constructive or based on specific knowledge; based on the knowledge society***.

Several scholars argue that it is not enough with only specific knowledge to be called *expert*, i.e., L.A. Dexter (Dexter, 2006) differentiates experts from specialists who have specific knowledge, but at the level of a hobby. In order to differentiate notions *specialist* and *expert*, R. Hitzler (Hitzler, 2004) claims that experts are aware of the impact of their specific knowledge on others in the respective subject field. The definition of *expert* based on the knowledge society differentiates it from voluntary definition

where everyone is an expert in one's own life. As regards the constructive definition, the status of an *expert* is given by the researcher himself or herself (Bogner, Littig, Menz, 2009), an expert has specific knowledge created by the society itself (special knowledge and special functions).

Thus, an expert has competence of environment of professional activity, experience, special *expertise knowledge* (Littig, 2011) related to a respective subject field, it includes knowledge about action routines, decision-making regularities, collective orientation and interpretation of social models, as well as experts possess flexibility in thinking and in action, as well creativity and intuition.

Similarly, to Austrian scholars, scientists M. Meuser and U. Nagel (Meuser, Nagel, 2009) suggest that an expert is a broad-minded individual with high qualifications and special knowledge in the subject field having scores higher than an average respondent. The researcher himself/herself has to be fully responsible for the experts' competence, for their ability to solve the given tasks (Hoffmann et al., 2009).

Unlike large-scale surveys, where respondents are mostly anonymous, the identity in experts' surveys is known. During the routine expertise, a researcher has the opportunity to discover the most important aspects of the problem under the investigation, to increase reliability and validity of information, conclusions and recommendations, acquire unique and profound knowledge and experience during the life of an expert. The above-mentioned shows that an expert is a specialist, who is not only a practitioner, but also a well-prepared theorist having the opportunity to analyze, evaluate and predict scenarios of the research development.

There are several types of expert method: Delphi method, SEER method, PATTERN system, Forecasting programme method, method „Brainstorm”, Commission method.

**Delphi method.** The authors of this method are American scientists N. Dalkey and O. Helmer (Dalkey, Helmer, 1963); the aim of it is to find different views on the matter in a particular area. Delphi method's main features are: 1) experts' anonymity; 2) it is carried out in several steps; 3) it is done remotely. Delphi method is considered to be one of the most accurate methods as mutually independent experts are able to assess and forecast results more objectively than a structured group of people. In this way one can avoid a collision of various views and opinions, conformism and a collective impact that inevitably occur when working together (Dalkey, 1972; Hsu, Sandford, 2007; Ludlow, 1975).

There are three stages in Delphi method: 1) the initial stage, 2) the main stage, 3) the analytical stage. A team of experts is established in *the initial stage*, where number of experts does not matter, the focus should be on the quality of experts (Dalkey, Helmer, 1963; Hoffmann et al., 2009; Meuser, Nagel, 2009; Rowe, Wright, 1999). A survey is carried out in several rounds during the second stage where questions of a researcher's part are specified, structured; experts' assessment is statistically processed after each round, i.e., median *Me* and mode *Mo* are determined which should not exceed  $Me \pm 25\%$ , otherwise experts have to justify or specify their assessment. Experts are introduced with the results of each round which gives them an opportunity to change their views. It continues as long as experts' opinions coincide. Since the interviewing occurs in several stages, the researcher can correct questions, manage the procedure of the expertise. Several rounds allow one to get more balanced results. The researcher puts forward practical recommendations after receiving a collaborative assessment to address the problem. The results are analyzed and final recommendations are worked out in *the analytical stage*.

**SEER method** (*System for Event Evaluation and Review*). This method is used to analyse the scarcity of resources, capacity.

**PATTERN system** (*Planning Assistance Through Technical Evaluation of Relevance Numbers*). This method is used to determine the sub-structure and basic objectives of subject field, their significance, as well as amount of required financial, material and labor resources.

**Forecasting programme method** combines several system analysis methods.

**Method „Brainstorm”** generates new ideas for addressing complicated problems and training creative thinking.

**Commission method** is the method of obtaining experts' opinion during discussions.

Validity of experts' evaluation is achieved by means of logical and statistical procedures, selection of experts, a survey organization, data processing. Experts' point of view can be expressed not only

qualitatively but also quantitatively, i.e., in points and rating points (Glukhoded, Smetanin, 2016; Hoffmann et al., 2009).

The method consists in the analysis of the problem by experts with a qualitative and quantitative assessment of opinions and formal treatment of individual experts' opinion. Expert method provides an alternative solution for the assessment and the choice of the best variants.

On the basis of a personal reflection, it is possible to say that expertise has several stages (Figure 1): 1) a preparation stage of expertise; 2) the procedure; 3) data processing and analysis of the results.

A *preparation stage of expertise* (Figure 1) is very important since the following events occur during the preparation: 1) detailed planning of expertise: the definition of the aim, questions and objectives, the choice of the research methods (data acquisition and data processing methods); 2) selection of experts; 3) design of the material for experts, including experts' worksheets.

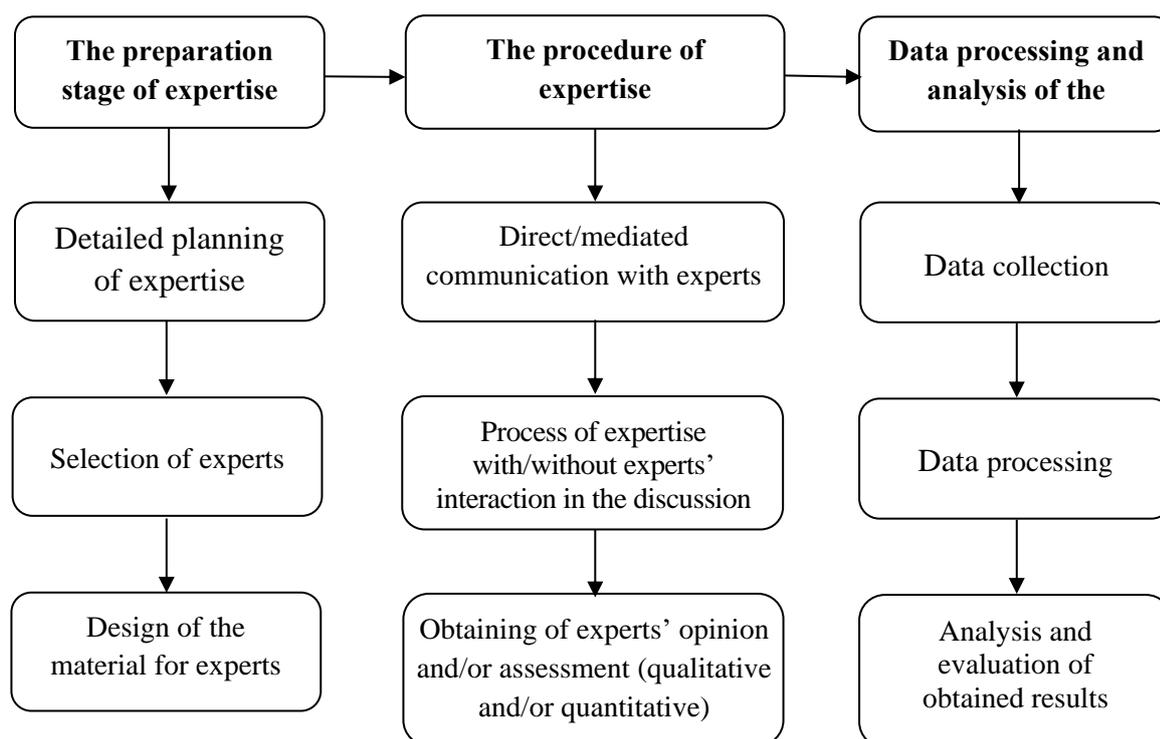


Figure 1. The stages of expertise.

### *The selection of experts and its principles.*

It is very important to select experts appropriately since the results of the expertise depend on it. The selection procedure should follow a certain procedure.

Not each professional of an industry, including a competent school teacher or a member of academic staff, scientist is eligible to be a competent expert, because experts need analytical and strategic thinking, forecasting ability, ability to look from a different angle at the object or a problem of the research (Mikecz, 2012; Shanteau, 1988; Stewart, 2001). Experts should be selected according to the aim of the research. Candidates for a position of an expert are chosen on the basis of several selection principles (Mikecz, 2012; Nind, Kilburn, Wiles, 2015; Stewart, 2001):

- each expert should represent his/her field of competence; however, the competences should partly overlap;
- professional and/or research activities should be directly or indirectly connected with the problem of the research;
- experts should not be directly connected with solution of the respective problem in their professional activities, i.e., experts should not be directly involved in the envisaged implementation of innovations.

The authors of the paper added additional principles which they considered to be of great importance in conducting the expert opinion method to three basic principles found in the scientific literature:

- experts should be competent in research methods;
- both external and internal experts should be included;
- experts should be familiar with the latest scientific and practical developments in the respective subject field, i.e., in education and pedagogical science;
- experts should have a combination of specific specialization professional competence and general competences;
- experts should be creative, flexible at work and creating attitudes; should be able to see creativity of a researcher / innovation author and at the same time forecast and analyse application opportunities and their necessity, as well as the results and consequences of the innovative implementation of the object of the research or a developed “product”.

It is necessary to assess the competence of experts in education, research, including familiarity with research methods. For this reason, the criteria for assessing experts' competence are required. In order to assess the competence of experts and their relevance to the aims and objectives of the expert opinion method, it is recommended to carry out the survey among potential experts in order to obtain information according to the expert assessment criteria, for example:

- years of academic/pedagogical work;
- experience in other fields of activity;
- formal higher education and qualifications;
- educational environment, including work experience;
- scientific or academic degree;
- additional qualifications acquired during lifelong learning;
- current position/positions;
- familiarity with research methods;
- scientific and /or methodological activities, including publications (methodological, scientific or popular scientific) supervision of research thesis;
- participation in associations, different commissions;
- close connection of professional activities with the subject field;
- implied connection of professional activities with the subject field.

Consequently, it is possible to say that expert opinion method allows: 1) to use heuristic ability of experts; 2) address the research question/problem, assess it from different aspects since each expert represents his/her area of activities, accumulated experience and competence; 3) it is possible to forecast scenarios with the help of experts; 4) to express information provided by experts in statistical data using various assessment scales; 5) receive valuable recommendations, commentaries, if it is required by the experts' task sheet; 6) make decisions dividing responsibility for the decision; 7) improve the “product” before it's experimental application in pedagogical/academic practice.

In order to find out how statistically significant consensus of experts' evaluation is, the secondary statistical analysis is performed to obtain conclusive statistical data. If consensus in experts' opinions is not found, it is necessary to proceed with the analysis and to check if differences in experts' assessment are caused by objective or subjective factors, for example, if experts see the problem from different angles, previous experience and other factors. More detailed analysis of the results gives an opportunity to find which criteria have different evaluation and why. According to the authors' experience, there are experts whose opinions differ significantly from the experience of other experts in all criteria (it is noticeably lower or higher). Such cases should be studied in more detail, analysing the opinion of an expert and factors influencing such an opinion. In spite of the fact that there are cases when there is a lack of consensus among experts' opinions or the result is not statistically significant, it is possible to obtain valid information about the object of the research. As it was mentioned before, experts' commentaries are very valuable which sometimes are more informative than evaluation scales themselves.

According to the authors' experience, the expert opinion method can be used both as a separate research and as a stage of the structured research.

## Conclusions

- An expert is not only a high level professional, a specialist with practical experience in his/ her subject field with high level competence and accumulated professional experience, but an expert is also a theoretician with analytical thinking ability and research experience which has a flexible mind and intuition, which is flexible in communication and expertise in order to be able to analyse, evaluate, forecast, make decisions.
- The expert opinion method allows to have a broader look at problems from different angles; to use heuristic ability of experts; to address a problem of the research and/or a problem situation with the help of experts' opinions / evaluations; to express experts' information statistically using various evaluation scales; to forecast, make improvements before the developed "product" is approbated; obtain valuable commentaries and recommendations from experts.
- There are several types of expert method: Delphi method, SEER method, PATTERN system, Forecasting programme method, method „Brainstorm“, Commission method. The choice of the method depends on the aims and objectives of the researcher. It is a common practice to adjust methods during the research.
- The scientific literature overview and experience reflection of the authors resulted in the design of expertise procedure consisting of three stages: 1) a preparation stage of expertise, which includes: detailed planning of expertise: the definition of the aim, questions and objectives, the choice of the research methods (data acquisition and data processing methods); the development of materials offered to experts; 2) the procedure of expertise; 3) data analysis as well as analysis of the results of expertise.
- According to the authors' experience, the expert opinion method can be used both as a separate research and as a stage of the structured research.

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## The understanding of the concepts of first language, second language and foreign language outside of Latvia

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**Abstract:** Both in Latvia and in the world the concept of first language, second language and foreign language exist, but often there is a different understanding of them, especially with regard to the terms of the second language and foreign language, therefore it is useful to find out how the concepts of the first language, the second language and the foreign language are understood and used in the world. These terms are used in language learning, in educational theory and in sociology. Since depending on different situations language may have different language status, the *aim* of the article is to ascertain how the concepts of first language, second language and foreign language are understood outside of Latvia. The main *method* used in this research is the study of scientific literature, summarizing the most significant works of foreign authors, which explain the terms of the first language, the second language and the foreign language. The study found that the term second language is used extensively outside of Latvia, describing the second language acquired chronologically, the majority language that the minorities know as well as any language other than the mother tongue. The *results* obtained in the study make it possible to compare the comprehension and use of the concepts of the first language, the second language and the foreign language outside Latvia and in Latvia. The author of the article has publications on the use of terms of the first language, the second language and the foreign language in Latvia and in exile conditions. Thus, the results obtained allow us to conclude that foreign researchers sometimes choose the term second language as a convenient and overarching term to designate both foreign language and second language in the sense understood by the Latvian researchers, even though also abroad these are two distinct concepts, however, in Latvia the distinction between them is more specific.

**Keywords:** first language, second language, foreign language, adult education.

### Introduction

After birth a person learns a language, which is commonly referred to as the mother tongue. At school, the person learns some other language, which is usually regarded as foreign language, but during the lifetime he/she moves to a country where he/she no longer speaks his/her mother tongue or even the foreign language he/she has learned at school, therefore the person learns another language. The given example shows that in different life situations the language may have different language status, that is, the language can be understood as the first language, second language or foreign language. Moreover, the understanding of these terms varies from country to country. It should also be pointed out that these terms can be used in various branches of science – in linguistics, pedagogy, as well as in sociolinguistics and psychology.

The author of this article has previously studied how the terms first language, second language and foreign language are understood and used in Latvia. That particular study found that in Latvia the term first language is characterized by features such as language learned in early childhood, the best-managed language and genetically inherited language. Which of these features to put forward as the predominant one when defining the first language depends on each individual, but it does not always allow you to teach your mother tongue according to your native language programs and standards. It is important to emphasize that the terms second language and foreign language in Latvia are rather distinct, and this distinction has existed in pedagogy for a long period of time as two different directions of lingua-didactics – Latvian language as a second language (LAT2) and Latvian as a foreign language (LATS) – have developed.

A study on the status of the Latvian language in exile has also been published, which reflects the fact that according to the language classification L1/L2/L3 used in the world and in Latvia, the exiles and exiled authors perceive the Latvian language as L1, the concept of which includes terms mother tongue, father tongue, home language, first language, native language, family language, kitchen language, heritage language, national heritage language, ancestral language and minority language for referring to the Latvian language in exile, as well as L3, which is most frequently perceived as a foreign language in Latvia and in the world.

The aim of the article is to determine how the concepts of first language, second language and foreign language are understood outside of Latvia, what the content of these concepts is and what may cause discussions as regards to the definition and understanding of these concepts.

### **Methodology**

This article is part of a broader study on the development of the Latvian language as a foreign language both in Latvia and abroad. One of the study's theoretical parts deals also with the terminological issues.

This article is based on scientific literature studies. The most important research by foreign authors, which explain the concepts of the first language, second language, and foreign language. In order to make it easier to understand the concepts of a second language and a foreign language that are very similar and sometimes not distinction in foreign scientific literature, several features were distinguished, which are characteristic for both concepts.

### **Results and Discussion**

The following article explains the understanding of the concept of first language, second language and foreign language as well as the difficulties arising from the interpretation of these notions.

#### Understanding the concept of first language

In foreign scientific literature, the first language (L1) is understood as the first language the child learns. The terms mother tongue or native language are also used. Often foreign literature also uses the term primary language (Loewen, Reinders, 2011, XI; Gass, Selinker, 2008, 7) when referring to the first language. In a situation where a person speaks only one language, there is no discussion of what his first language is. However, the situation is more complex in a multilingual environment, in which a child learns two languages at the same time. Some individuals can learn a single language since birth, but then acquire better knowledge of another language. However, the context of that statement makes it clear which is the person's native language. Therefore, the next language to be acquired is considered to be the second language (Loewen, Reinders, 2011, XI). This allows us to conclude that Latvian authors have a wider understanding of the term *native language*, which includes the fact that it can also be the best-acquired language.

G. Cook, just like the Latvian researcher I. Druviete, believes that the child may also have several native languages. G. Cook uses the term home language (Cook, 2003, 128), which is deemed to refer to the language that is used in the family. In many migrant environments, the status of the first language in the migrant's family changes during certain periods. The parents can preserve their native language as a means of communication at home, but their children will increasingly use the vast language of the neighbourhood to communicate with each other, as well as with their parents and sometimes even grandparents. In such an environment, the first language loses its special status and becomes the second or third language for the younger generation (De Bot, Lowie, Verspoor, 2005, 6).

In countries such as England and France, many children are socializing in a linguistically diverse environment, and it seems clear which their first language is. But most people in the world are multilingual, and it's not clear to many people what makes up their first, second, or third language. A child can learn one or two other languages at school, and later in life even learn and use another language to such an extent that the first foreign language is not used for a long time and disappear. It is unclear how the terms second language and third language would be significant in such cases. Some linguists rank terms of the language, depending on their skill level, other linguists rank them according to the time of learning, but none of these differences apply to children who have two or more languages since birth. In this case, the first, the second or the third language can only be defined depending on the environment (De Bot, Lowie, Verspoor, 2005, 6). Comparing how the Latvian scientists use the terms of the first and the second language, it can be concluded that the term first language, which is also considered to be a native language, includes the fact that an individual can have two or more languages since birth, and all of them will be the native languages of an individual. In the Latvian terminology, it is not the practice to make a distinction between the terms first native language and the second native language, as is often done in foreign literature. Moreover, the definition of the native language in the dictionary of linguo-didactic terms developed by the Latvian authors also clearly shows the environment of the mother tongue use i.e. family or school.

### Understanding the concept of second language

The second language has several features characterizing this term. First of all, any language that is different from the native language.

Mostly in the world, the term second language is understood as any language, thus including a foreign language that is acquired after the native language (Mitchell, Myles, 2013, 5-6; Gass, Selinker, 2008, 7; Loewen, Reinders, 2011, XI; Smith, 2014, 7; Ellis, 1997, 3; White, 2003, XII). Foreign researchers also emphasize that the term second language is not used to refer to a second language acquired chronologically. For some people, it may be the third or even fourth language acquired during his lifetime, thus it is a general term that stands for the acquisition of any language that is different from the native language.

Secondly, the language environment.

Often, foreign scientists emphasize the importance of the environment in which language is learned. This means that the second language is a language which is acquired in a country where this language is an official language (De Bot, Lowie, Verspoor, 2005, 7; Littlewood, 1998, 3; Cook, 2003, 131; Kramersch, 2008, 4; Crystal, 2003; Johnson, Johnson, 1999, 133-134). G. Cook defines the second language as the language of majority or the official language of the respective country, which is not the native language of the language learner (Cook, 2003, 131). D. Crystal uses the term official language as it is used as a means of communication in such areas as public administration, litigation, the media and the education system. He also emphasizes that this language is usually described as a second language, since it is considered to be complementary to the native or first language of an individual (Crystal, 2003). Latvian researchers highlight this feature as the main one when using the term second language.

Thirdly, the way in which the language is acquired. The foreign researchers point out that learning a second language can take both guided (intentional) and natural language learning (Ellis, 1997, 3; Gass, Selinker, 2008, 7; Kramersch, 2008, 5).

### Understanding the concept of a foreign language

Although the term second language has several meanings and it is often used extensively, foreign language literature also uses the term foreign language. Abbreviations L3, L4 are sometimes used in the theoretical literature when referring to languages acquired successively after the second language (L2), so they could be considered foreign languages. Therefore, the features specific to the concept of a foreign language will be further explained.

Firstly, the language environment.

Many researchers agree that the term foreign language is generally refers to the acquisition of the non-native language in the language of the native speaker, for example, French speakers are learning English language in France (Gass, Selinker, 2008, 7; Ellis, 1997, 11; De Bot, Lowie, Verspoor, 2005, 7; Littlewood, 1998, 3; Cook, 2003, 128; Crystal, 2003). Therefore, a foreign language has no social function in the environment in which it is acquired, and there are usually no or very few persons who speak in the language that is being acquired in this environment.

Secondly, the purpose of language acquisition.

Sometimes foreign researchers emphasize that the term foreign language can be used when an individual stay in a country temporarily, usually associated with education or work, and guidelines for learning foreign language and textbooks are published in the country of origin. These guidelines reflect the goals and values of the education system of the country concerned (Kramersch, 2008, 5; Johnson, Johnson, 1999, 134). This means that the official language used in the country, which is used by the people living there, can be a foreign language, but important factor is the length of stay of these people, i.e. it is a temporary stay. Such language definition has been facilitated by the jobseekers moving to more economically developed country, with a purpose of short-stay, as well as due to the students' desire or the need to study abroad. This view is also emphasized by D. Larsen-Freeman, a researcher in teaching and learning theory of the English language and M.H. Long (Larsen-Freeman, Long, 2014), professor at the University of Maryland.

Thirdly, the way, in which the language is acquired.

Sometimes the researchers emphasise that the term foreign language refers to a language which the person is motivated to learn by incentive rather than to learn naturally, thus it is taught but the person fails to learn it (Knapp, Seidlhofer, Widdowson, 2011, 3). Of course, in this context language learning for educational purposes can also be addressed as a topic, for example, classical languages like Latin language taught in certain fields, for example, to medical students.

### Understanding the concept of third language

The term foreign language is frequently referred to in the theoretical literature, but sometimes the term third language, which is designated by the abbreviation L3, occur occasionally as well. It might seem that these terms are synonymous, but it is not entirely true. The second language encyclopaedia suggests that a person can learn a third language only when he/she has a prior knowledge of two or more languages, usually including at least one non-native language (Robinson, 2013, 644). This means that, for example, members of minorities residing in Latvia, first of all, have knowledge of their mother tongue, secondly, knowledge of the official language, and, thirdly, for example, knowledge of English language, which in this case could be considered as a third language. This would be an applicable explanation only if Section 5 of the State Language Law is taken into account, within the meaning of which the Latvian language for members of minorities should be regarded as a foreign language.

I. Bliska explains that in the scientific literature the term third language (L3) applies to both the language acquired as a second foreign language and, more generally, to the language acquired after the second foreign language. Thus, the concept of the third language confirms the presence of three languages in the learning process or in the communication situation (Bliska, 2015, 89-90). This explanation could very well be applied to foreigners who come to Latvia and learn Latvian as a foreign language, as they usually have a knowledge of their native language and knowledge of at least one foreign language, most often knowledge of English, but sometimes also knowledge of other languages, for example, French. In this case, they will learn Latvian as a regular foreign language, which could also be defined as a third language, although in terms of the number of languages studied, it could be even the fourth or fifth language that they learn.

The term third language is generally referred to the third language that the language learner acquires in the chronological order, but in a more general sense, this term is used to refer to any language that is acquired by the multilingual language learner at the particular time. So, it certainly does not have to be the third language in a row. The third language learners are different from those who are acquiring a non-native language (L2) for the first time because they have previous language learning experience and more diverse knowledge of the language (Robinson, 2013, 644-645).

In general, it should be concluded that the use of the term third language or foreign language could be important for the learner himself, so that he can define, for example, the status of the Latvian language when learning it. From a linguo-didactic point of view, the language learner will learn it anyway as a foreign language, regardless of which consecutive foreign language it will be for him.

### The combination of concepts second language and foreign language: definitional difficulties

Although there is both concept of a second language and a foreign language in the world, foreign researchers often combine these concepts using only one term – the second language, which contains a lot of information and can be used in different situations.

Foreign researchers emphasize that “it is wise to include the term foreign language in a more general term, the second language, because we (Mitchell, Myles, 2013, 5-6) believe that the learning process is the same for both closer and more distant languages, although there is a different purpose and circumstances of learning”. This means that foreign researchers tend to combine these terms for convenience, although they emphasize that there are differences between them. This view is also expressed by Lydia White: “There will be no differences made between the acquisition of the second language and the acquisition of a foreign language. In principle, any acquisition or learning process of a non-native language will have the same constraints, although the limited use of the language in question could be the main obstacle in the context of learning a given foreign language (White, 2003, XII).

Although foreign literature emphasizes that the terms second language and foreign language have different functions, however, these concepts are often merged into one term – the second language. “The second language has social functions in the environment in which it is acquired, while the foreign

language is acquired mainly in order to communicate with members of a particular community. I [William Littlewood] agree that this is a useful distinction. However, in this book [Foreign and Second Language Learning] the term second language is used as an encompassing term for both the second language and the foreign language” (Littlewood, 1998, 2).

Taking into account all the aforementioned features of the concept of the second language – any language other than the native language; language environment and the way in which the language is acquired, it can be concluded that, for the sake of convenience, foreign researchers use the term second language, it being understood as any language acquired after the native language, although not all languages share the same learning objectives, moreover, the environment in which the language is learned also varies. It has led the foreign researchers to believe that the term second language is not very successful for such use. Rod Ellis, for example, indicates that the second language refers certain learning environments such as South Africa, which is related to black language learners, and then the term second language can be interpreted as an insult (Ellis, 1997, 11). R. Ellis suggests using the term additional language as a more acceptable term for the term second language (Ellis, 1997, 11). The term additional language is also supported by some other foreign authors, stating that it can be used to exclude any sequence of the language acquired after the first language. In addition, researchers also acknowledge that the term additional language is more encompassing than the second language acquired in chronological order (Loewen, Reinders, 2011, XI).

Although the term additional language is much more successful, it has not gained popularity and studies continue to use the term second language.

M. Smith has also written about the term second language, and he emphasizes that the term second language is better than secondary or non-native language, which indicate a lower status (Smith, 2014, 7).

D. Larsen-Freeman and M.H. Long emphasize that in today’s world the acquisition of second language is widespread. This does not concern only schools, as language acquisition affects many other aspects of people’s lives. English as a second language for many people in the world is increasingly becoming an international language in fields of business and trade, science and technology, as well as international relations and diplomacy. Many industry professionals from different parts of the world meet in conferences, congresses and conversational language (working language) very often is English (Larsen-Freeman, Long, 2014; Kramsch, 2008, 4).

D. Crystal emphasizes that English is now widely acquired also as a foreign language. In more than 100 countries such as China, Russia, Germany, Spain, Egypt and Brazil, as well as in many other countries, it is the main foreign language that children learn at school, often ousting other languages, for example, in 1996, English replaced the French language as the main foreign language in the schools of Algeria (former colony of France). D. Crystal also points out that English has already become a global language, since nearly a quarter of the world’s population speaks English fluently or good enough, and this number is only rising. At the end of the 90s of the 20th century, it ranged from 1.2 to 1.5 billion people. No other language can resemble this increase. Even the Chinese language, which has 8 spoken language forms but is unified by a common writing system, is known to only 1.1 billion people (Crystal, 2003, 3-5).

#### Non-distinction of the concepts of a second language and foreign language

Not all countries have a distinction between a second language and a foreign language, for example, in Poland only the term foreign language is used when referring to second language acquisition. (Grunhage-Monetti, Halewijn, Holland, 2003, 78).

There is a concept of foreign language in Estonia. The Estonian Language Act states that any language that is different from the Estonian language or Estonian sign language is considered a foreign language. The minority language in Estonia is also considered to be a foreign language historically used as their native language by Estonian citizens belonging to national minorities (Language Act, 2011).

In Lithuania two terms are used, namely, *svetimoji kalba* (lit. alien) and *uzsienio kalba* (lit. foreign). The non-native or “alien” language (*svetimoji kalba*) is the language that a person learns purposefully at school or in special courses. A significant difference between the native language and “alien” language is the following – native language is the first language that the person acquires in early childhood. The “alien” language is learned later than the second or third language. The “alien” language can also be

perceived as a “foreign” language (*uzsienio kalba*), i.e. language of another country, such as English language and French language in Lithuania, and also as a national language, which is really not the native language for some of the citizens, for example, for Russians, Poles and other citizens living in Lithuania the Lithuanian language is not the native language, but for them it is not also a “foreign” language. This means that the concept of *svetimoji kalba* is wider than the concept of *užsienio kalba* (Negimtoji arba svetimoji..., 2018). A similar explanation can be found in Ineta Dabašinskiene’s and Raminta Garuckaitė’s article “Early Foreign Language Acquisition – Unanswered Questions” („Agrina svesvalodas apguve – neatbildeti jautajumi”) (Dabasinskiene, Garuckaite, 2009, 295). It allows us to conclude that the term *uzsienio kalba* corresponds to the term foreign language used in the world, while the *svetimoji kalba* would be the language which is elsewhere in the world referred to as the second language.

In the “Multilingual Thesaurus of the European Union”, alongside the English term foreign language and the Latvian term *svesvaloda*, Lithuanian term *uzsienio kalba* is used (EuroVoc, 2008).

## Conclusions

With regard to the understanding of concept of a second language and foreign language, it should be emphasized that in the world, the term second language is used extensively, both in terms of the second language acquired chronologically and majority language, which is known by minorities, as well as any language other than the native language. By contrast, in Latvia, the term second language is understood mainly as the majority language, which the minorities should know. Foreign researchers sometimes choose the term second language as a convenient and encompassing term to designate both foreign language and second language in the sense understood by the Latvian researchers, even though also abroad these are two distinct concepts. Whereas in Latvia, the distinction between these concepts is more specific.

Although in Latvia the distinction of the concepts of second language and foreign language is more specific than in the world, the content of the concept LAT2 is slowly changing, which is revealed in the earlier studies of the author of the article.

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## Opportunities to Improve the Digital Skills of Health Care Specialists

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**Abstract:** The authors investigate the opportunities to improve the digital skills of graduates from the Latvian Universities of health. The digital skills are one of the most necessary preconditions for a productive cooperation in society of information. In Latvia, the digital skills of medical staff are important and urgent, especially in association with the e-health system implementation. The authors continue and develop their previous research by involving new participants and improving the applied models. The authors have already found out in their previous studies that the digital skills of graduates of health care specialities are formed in informatics and statistics courses, and achievements in these courses affect the application of the information and communication technology and statistics in their professional work. This statement is an indication that there are opportunities to improve these skills, namely, the acquisition of informatics and statistics courses must be improved. For students the first professional work of a relatively large volume is diploma paper. In the recent research, the authors also continue finding out evidence of the important role of information and statistics courses for the use of information and communication technologies and statistics in professional work of graduates of health care specialities.

**Keywords:** health care, information and communication technology, statistics, university education.

### Introduction

The authors (Rasnacs, Vitins, 2013) started their research in 2012 by inquiring graduates of 2001 – 2012 of the Riga Stradins University and Riga Technical University. In 2016, graduates (2005 – 2016) of the Red Cross Medical College of Riga Stradins University were involved in the research (Rasnacs, Vitins, 2017).

The basis of the research is inquiry. About 300 graduates of health care specialities were inquired in the internet environment. The authors were interested in how the results of informatics and statistics courses affect the prediction of the results relevant to professional work. Data were obtained from 114 graduates. Descriptive statistics and Spearman correlation analysis were carried out. The obtained correlation coefficients were not so high to form linear models; therefore, nonlinear models were formed. It should be mentioned that assessments of the informatics and statistics courses and defense of diploma paper were high (Me=8 according to 10-point system).

*The aim of the research:* to determine whether by improving some assessments the other assessments will be also improved.

### Methodology

Hypothesis of the research: improvement of the assessment of informatics and statistics courses improves the use of information and communication technology and statistics in professional work.

The authors obtained data from 114 graduates of health care specialities of the Latvian higher education institutions. The authors asked about the following issues:

- higher education institution graduated;
- speciality;
- year of graduation;
- $x_1$  – mark in the informatics and statistics course (if there are several study courses, then the rounded average mark);
- $x_2$  – self-assessment of your knowledge of informatics and statistics;
- $x_3$  – assessment of diploma paper defense;
- $x_4$  – self-assessment of diploma paper;
- $x_5$  – your opinion – how much the defense of your diploma paper results were affected by the acquisition of informatics and statistics course;
- $x_6$  – your opinion – how useful the acquisition of informatics and statistics course is in your professional work;

- $x_7$  – your opinion – how much the defense of your diploma paper results were affected by other study courses;
- $x_8$  – your opinion – how much the defense of your diploma paper results were affected by individual consultations on informatics and statistics issues during its working out (if you attended any).

The students' data did not correspond to the normal distribution (Kolmogorov – Smirnov test,  $p < 0.001$ ), except  $x_6$  (McCrum-Gardner, 2008; Moore, 2007). Therefore, a nonparametric statistic was applied.

It should be taken into consideration that courses and diploma paper at the Latvian higher education institutions are assessed in scores of 10-point system. A successful assessment score is from four to ten points. For a student to be allowed to work out his/her diploma paper, the assessment  $x_1$  must be at least 4. For a student to graduate, the assessment  $x_3$  must be at least 4. The other assessments may be from 1 to 10, the authors assumed that 0 value means an impossible assessment. If a student receives  $x_1$  a failure assessment 3, then  $x_3$  should be 3, and other assessments 0.

## Results and Discussion

Statistics of the survey variables are shown in Figure 1.

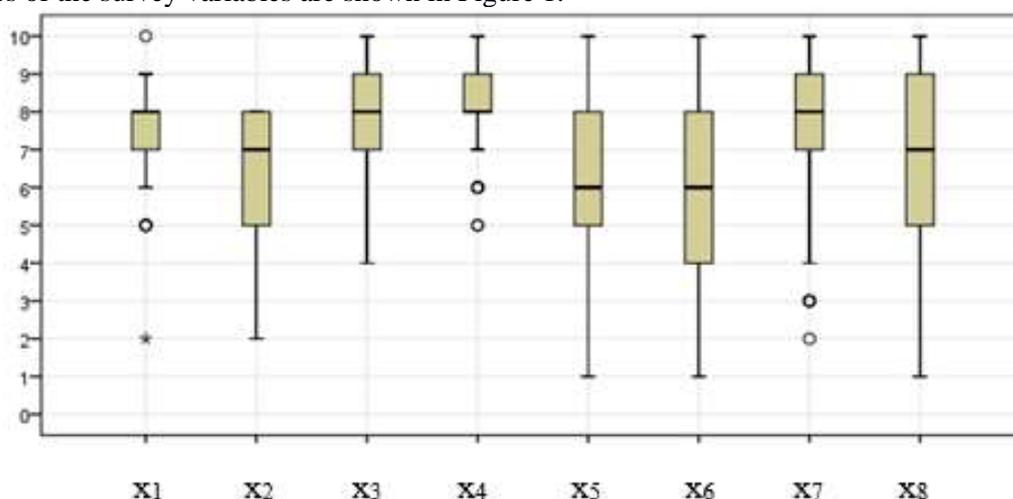


Figure 1. Factors influencing the formation of a grade.

Correlation coefficients between  $x_1$  (max 0.239) and  $x_2$  (max 0.295) are not so high in order to form linear models (Table 1). The sign \* means that correlation is significant at the 0.05 level (2-tailed). The sign \*\* means that correlation is significant at the 0.01 level (2-tailed).

Table 1

### Correlation coefficients

Variables	$x_1$			$x_2$		
	r	p	n	r	p	n
$x_3$	0.209*	0.040	97	0.117	0.243	101
$x_4$	0.231*	0.023	97	0.243*	0.014	101
$x_5$	0.239*	0.018	97	0.269**	0.006	101
$x_6$	0.173	0.091	97	0.295**	0.003	101
$x_7$	0.152	0.136	97	-0.049	0.630	101
$x_8$	0.199	0.059	91	-0.032	0.759	95

Poor correlation between variables  $x_1$  and  $x_5$  is drawn in Figure 2 and between variables  $x_2$  and  $x_6$  in Figure 3.

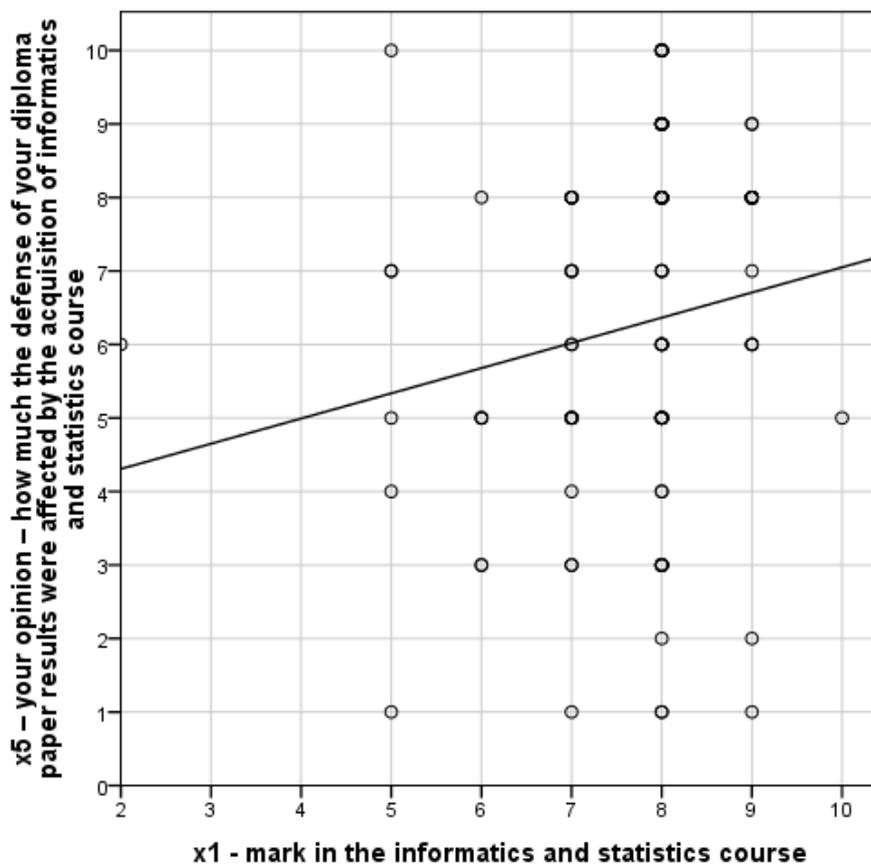


Figure 2. Correlation between variables  $x_1$  and  $x_5$ .

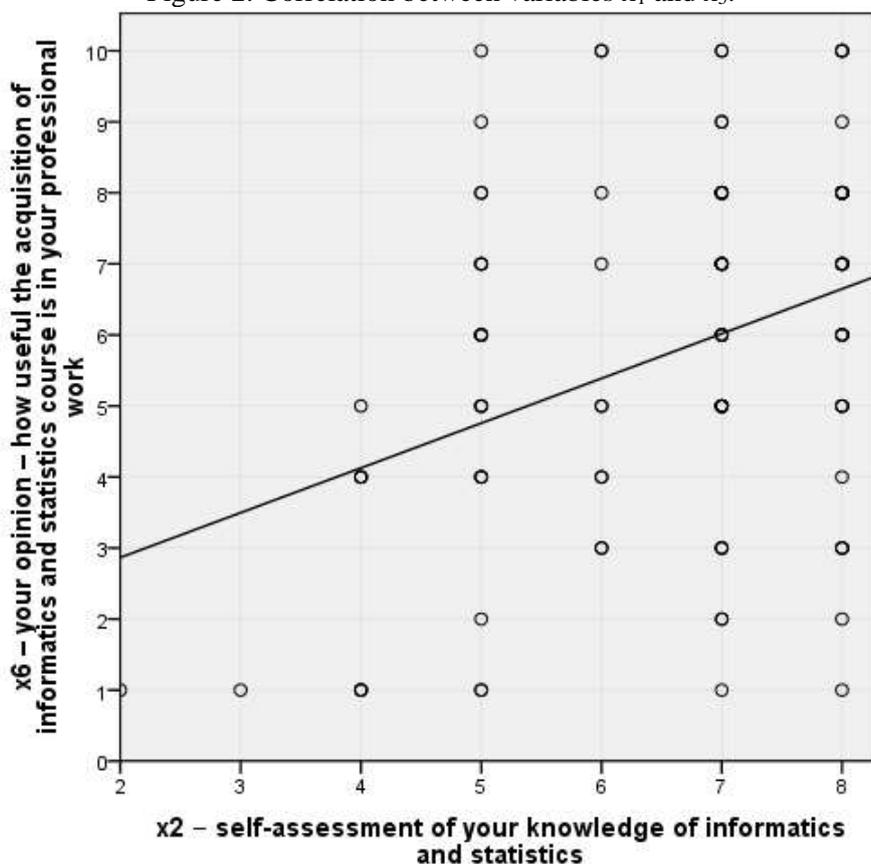


Figure 3. Correlation between variables  $x_2$  and  $x_6$ .

By using the traditional multiple linear regression, the following model was obtained:

$$x_3=5.65+0.232x_1+0.093x_2, R^2=0.058 \quad (1)$$

However, this model is not applicable for prediction because:

- determination coefficient is low;
- both factors  $x_1$  and  $x_2$  are not statistically significant ( $p > 0.05$ );
- students who received  $x_1=3$  points and self-assessment  $x_2=1$ , prediction of diploma paper grade is 6, which is incorrect.

Therefore, the authors were trying to find ways how to develop nonlinear models. Models were developed by using the several methods.

1. In Latvia, a successful assessment score is 4 – 10 points; for a student to be allowed to work out the diploma paper, assessments of all courses must be at least 4.
2. Failure assessments (1, 2, 3)  $x_1$  (students' grades in informatics and statistics courses) and  $x_3$  (assessment of diploma paper defense) were identified as 3 in order to attach the model to the starting point of the coordinates; by subtracting 3 from the failure assessment, 0 is obtained.
3. Multiplication  $(x_1-3)x_2$  ( $x_2$ : self-assessment of students' knowledge and skills in informatics and statistics) in the models was used in order to obtain a real fact: if the assessment of informatics and statistics courses was a failure – 3, then the multiplier is  $x_1-3$ , consequently multiplication is  $(x_1-3)x_2$  irrespective of  $x_2$  is 0.
4.  $\ln$  was used in the models in order to approximate the data to the normal distribution.
5. 1 was added to the expression  $(x_1-3)x_2$ , in case of the failure (when multiplication is 0),  $\ln$  could be calculated, that is 0.
6. Using the above-mentioned assumptions, models were developed in the *MS Excel* environment with the *Data Analysis/Regression* tool.

The following mathematic models were obtained not using the logarithm (Table 2) and using the logarithm (Table 3).

Table 2

#### Linear mathematic models

ID	n	Model	R <sup>2</sup>	Error
1	96	$x_3=0.150(x_1-3)x_2+3$	0.876	20%
2	96	$x_4=0.239(x_1-3)x_2$	0.901	26%
3	96	$x_5=0.189*(x_1-3)x_2$	0.848	73%
4	96	$x_6=0.175*(x_1-3)x_2$	0.826	38%
5	96	$x_7=0.216*(x_1-3)x_2$	0.855	31%
6	90	$x_8=0.188*(x_1-3)x_2$	0.772	236%

Table 3

#### Logarithmic mathematic models

ID	n	Model	R <sup>2</sup>	Error
1	96	$x_3=1.475*(\ln(x_1-3)x_2+1)+3$	0.940	12%
2	96	$x_4=2.373*(\ln(x_1-3)x_2+1)$	0.977	13%
3	96	$x_5=1.837*(\ln(x_1-3)x_2+1)$	0.882	71%
4	96	$x_6=1.694*(\ln(x_1-3)x_2+1)$	0.853	37%
5	96	$x_7=2.149*(\ln(x_1-3)x_2+1)$	0.930	16%
6	90	$x_8=1.821*(\ln(x_1-3)x_2+1)$	0.821	229%

In the column  $n$ , the number of useful data of variables involved in the model is presented. In the column *Model*, there is the mathematic model equation. In the column  $R^2$ , the determination coefficient is given – percentage of the dependent variable dispersion that the model explains, for example, if  $R^2$  is 0.876, then 87.6 %. In the column *Error*, there is the mean relative error, which resulted approximating the models.

The relative error was calculated by the formula:

$$R = \frac{|y_p - y_r|}{y_r} \quad (2)$$

where  $y_p$  - predicted value by the model;  
 $y_r$  - real value.

Let us look at the example how to work with a model for the prediction of the diploma paper assessment. For example, for a student  $x_1=7$  (grades in informatics and statistics courses),  $x_2=8$  (self-assessment of students' knowledge and skills of informatics and statistics).

$$x_3=0.150(7-3)*8+3\approx 8 \quad (3)$$

$$x_3=1.475*(\ln(7-3)*8+1)+3=8.158\approx 8 \quad (4)$$

Consequently, the prediction of the diploma paper defense assessment of the above-mentioned student is 8 with both types of models.

There is a tendency that for those graduates who have a low informatics and statistics courses assessment, majority of other assessments are also low, and vice versa. Let us have a closer look at the cases and what values gave logarithmic models due to higher coefficients of determination  $R^2$ . In this respect, we will discuss three situations of each model:

- assessment is average 5;
- assessment is good 7;
- assessment is excellent 10.

Table 4

**Results of logarithmic model predictions**

ID	Average	Good	Excellent
$x_1$	5	7	10
$x_2$	5	7	10
$x_3$	7	8	9
$x_4$	6	8	10
$x_5$	4	6	8
$x_6$	4	6	7
$x_7$	5	7	9
$x_8$	4	6	8

In Table 4, in the lanes  $x_1 - x_2$  there are values of independent variables. In the lanes  $x_3 - x_8$ , values of dependent variables are given. These are prediction results. In the column *Average*, assessments are average, in the column *Good*, assessments are good, in the column *Excellent*, assessments are excellent. Not always it is the maximum or minimum value, for example, if  $x_1$  and  $x_2$  are 10, then  $x_3$  is predicted 9.

## Conclusions

- Effect of the acquisition of the informatics and statistics courses on the diploma paper and professional work was investigated by means of the inquiry of graduates of health care specialities of the higher education institutions.
- Assessments of the informatics and statistics courses and diploma paper defense are high.
- Models obtained by using logarithms give more precise predictions.
- At the higher education institutions, attention should be paid to the acquisition of informatics and statistics courses as good as possible. Good knowledge and skills in these courses will result in a good assessment of diploma paper defense and good achievements in the usage of information and communication technology and statistics in professional work.

### Acknowledgements

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## The Educational Aspects of Integrating Popular Music into Lessons

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**Abstract:** Solving the pedagogical dilemma of popular music a number of questions arouse: can popular music educate? How can it educate? What factors predetermine the educational impact of popular music? How to differentiate between appropriate and inappropriate music? Or perhaps, popular music is a problem of society's culture, then how to solve this problem? Is popular music a sign of bad taste? Can we perceive values in popular music under changing moral norms? Is music evaluated using norms of "elite" music? The formulated questions allow to state that the influence of popular music on school learners is undisputed, therefore, it is significant to search for ways to use it in primary education. The goal is to reveal educational possibilities of popular music integration applying active education methods in music lessons of primary formers. The research is based on the educational project, which was implemented in the 2nd-4th forms of primary school. Choosing characteristic popular music compositions and evoking school learners' artistic experiences, the idea of personal meaning and emotional imitation methods were regarded as important during the educational project. This is supremely significant conveying a specific perception of music. The research on enrichment of music curriculum with attractive music forms disclosed that popular music occupies an exceptional place in the music value scale of learners, provides experience of positive emotions and can serve as a meaningful means for promotion of value-based attitudes of junior school learners. Integration of popular music into primary music education helps to implement one of the most important goals – to provide necessary music education, which would contribute to creating foundations for self-perception and positive relations with other people.

**Keywords:** primary music education, popular music, active methods, school education.

### Introduction

The aim to address the challenges imposed by the 21st century has been observed in contemporary theory and practice of pedagogy, which include implementation of life-long learning, assurance of education quality, preparation of an individual for life and successful professional activity under rapidly changing social and cultural conditions. Education today should be understood as the main power that modernises society and as a prerequisite for success in every person's life, whereas learning is acknowledged as a crucial factor for personal improvement. Indicating the direction of education in the General Curricular of Primary and Basic Education of Lithuania (Pradinio ir pagrindinio..., 2008), it is stated that the content of education answers new challenges imposed on education, i.e., rapid change in social and economic life and expanding possibilities for implementation of education innovations. School learners have to acquire necessary knowledge and understanding, to develop key abilities and value-based attitudes. Therefore, formulating the goals of education, it is appropriate to consider the factors that might have influence and to retain the link of the learner himself or herself with reality.

Popular music reveals itself as a holistic factor of school learners' life experience and becomes an inseparable part of their life in the period of changes in socio-cultural life, development of information society, value transformations and changes in form and content of music. School learners accept musical information declared by contemporary environment with admiration and this information naturally derives from their practical activities but does not always have a positive influence on development of their esthetical taste (Piliciauskas, 1998; Juvonen, 2002; Rauduvaite, 2016). Multi-faceted change in music culture requires from teachers the ability to orient in the space of changes, to flexibly use the new opening possibilities of music, to help a learner the change of contemporary music culture, to develop learners' music experience, to foster their emotional maturity through the emotional relation with music, to presuppose their general abilities and value-based attitudes. The challenges of changing society encourage teachers to remain in close contact to the musical environment that is close to school learners, to employ possibilities of popular music searching for closer interaction between music culture and education.

The methods and their choice acquire utmost importance in the process of education. Recently in Lithuania attempts have been made to evoke school learners' interest in various kinds of music searching for various methods that activate their musical activities. Regardless of the variety of methods for

musical educational activities, the research on the revelation of the educational potential of popular music and practical application of active music education methods as well as relevant teaching aids are insufficient in Lithuania.

However, more frequently educational potential of popular music has been a research focus among foreign scholars (Wright, Finney, 2010; Davis, Blair, 2011; Mantie, 2013; Sepp, Ruokonen, 2013; Mark, Madera, 2014; Springer, Gooding, 2013). Researchers also suggest reducing the gap between education curricular and music interests of contemporary school learners, their abilities, school needs through creating a new context of music teaching (Juvonen, 2002; Nilsson, Folkestad, 2005; Green, 2006; Hedden, 2010; Juvonen, Ruismaki, Lehtonen, 2012; Bowman, 2012; Rodriguez, 2012; Carvalho, Scavarda, 2014; Law, Ho, 2015).

The Lithuanian educational researcher addresses various problem issues related to music education discussing peculiarities of expression in school learner's music activities and perspectives of its improvement. However, the influence of popular music developing value-based attitudes of a child as a maturing personality and practical application of active music education methods (personal meaning and emotional imitation) during lessons have not been exhaustively analysed so far. Therefore, it is necessary to search for activities that allow to integrate popular music not only for improvement of education curriculum but also for nurturance of child's personal value-based attitudes simultaneously understanding the changing situation of music education curriculum in the context of contemporary music culture.

**The aim of the study** is to reveal educational possibilities of popular music integration applying active educational methods in music lessons of primary learners.

### Methodology

Seeking to analyse the integration of popular music into primary education, the educational project with second-fourth formers in primary education in one of the classical gymnasiums of the city was chosen as the basis of the empirical research. The sample of the educational project included 70 school learners. The project was conducted in the school year of 2016-2017.

The essence of the educational project relies on the search for or creation of new components of pedagogical reality at the junction of practice-based scientific cognition and innovative educational activity (Charvat, 2003). In other words, this includes an educational process based on a new (or relatively new but relevant) idea that is created under the researcher's initiative through shared attempts of the researcher and participants in this process. The educational project is considered to be a specific method for approbation of an educational idea. The purpose of the educational project is to test if a pedagogical idea suggested by the researcher is realistic and acceptable to participants in the process of education. The method of educational project sets priority for the analysis of new educational phenomena, solution of socially relevant educational problems and introduction of innovative educational technologies. Therefore, the method of educational project was chosen for the analysis the educational role of popular music as a contemporary socio-cultural phenomenon.

Applying active music education methods during the educational project, the method of personal meaning suggested by A. Piliciauskas was seen as central. According to the author, having realised the personal meaning of the impact of a musical composition, the performer "cannot remain an indifferent observer of events because presenting a piece of music to a listener she or he presents herself or himself: ideals, beliefs and principles of spiritual life" (Piliciauskas, 1998, 227). To enable a school learner to have what to feel and experience, the artistically valuable repertoire of pop music was chosen, which included compositions and arrangements created by professional composers. A considerable attention was allotted to the analysis of musical intonation, instrumental accompaniment, the link between poetical text and music. Another aim was to reveal specifics of the effect of means of musical expression on the listener and the performer and to create condition for experiencing a piece of music. The emotional sensation was considered a relevant link in raising musical awareness of children at this school age period. According to A. Piliciauskas (1998), emotional experiences and the attitude to reality predetermine the variety of behaviour states.

The pedagogical idea, i.e. a method of emotional imitation, suggested by L. Navickiene (2005) is equally important here. This is a method of promoting school learners' musicality and musical abilities as well as their self-education imitating the content of emotional intonations of a composition or experiences of

an imaginary character, which is evoked with the help of integration of other kinds of art. Seeking to provide emotional images with moral direction, L. Navickiene relies on certain intents of musical activities, i.e. a complex of informative and laconic questions, which can embrace all the life spheres and analyse relevant problems. Intents of musical activity direct school learners to the targeted verbalisation of experiences.

During the educational project attempts were made to ensure that music experiences acquired through popular music enhance school students' fascination with human values and motivate them to sensation of the good and the beautiful. An exceptional focus is laid on identification-verbalisation of musical experiences as on an important pedagogical means for understanding the effect of music. In other words, to enable school learners to understand the individual's internal world expressed through means of popular music, they have as if to enter the world of this musical composition, to act in the imaginary situation and, with the help of the teacher, to verbalise experienced individual emotions. Though school learners experience positive and negative emotions, but positive emotions are more frequent in favourite activities. During music lessons school learners were encouraged to present feelings and thoughts evoked by listening to or performing music and to explain the choice of one or another composition of popular music.

The research was conducted applying several **methods**: analysis of scholarly literature and documents and the educational project.

### Results and Discussion

The concept of popular music in the article is determined in the following way: popular music includes pieces of music of wide appeal, which are well known, frequently performed and represent different genres and styles. It is also appropriate to exclude one more structural component in the variety of popular music, i.e. popular music to primary schoolchildren. In other words, taking into account currently relevant issues, it is necessary to distinguish and determine popular music that aims at improvement of educational curriculum, i.e. is meant for listening to or performing by school children, and at encouragement of dynamics in their value-based attitudes.

Following the idea of personal meaning and principles of emotional imitation applying popular music and seeking to illustrate the presented statements, examples of various musical activities, i.e. modelling of activity intents before a certain action, are presented. The discussions that encourage school learners to ground their opinion, decisions and promote autonomy of decisions made and that are initiated by the teacher become of utmost importance in such activities.

The episode of listening to "The Return of Spring" by D. and G. Gibsons, which was applied during the educational research, is presented below. The prevailing intent of the activity is *Concern about others*.

Introductory conversation. *The spring outside: regenerated nature and songs of homing birds in the nests. However, not all of them find their "homes", as some bird nests are taken or ruined. Everybody wants to be happy and welcomed in their cosy home. Listening to bird voices heard in music, read the riddle: how do the birds feel? What moods (joy, happiness, disappointment, surprise, sorrow) do birds go through? (the music composition also contains natural sounds of nature: bird voices, chatter of river, sighing of trees, crackle of branches, whisper of leaves, whirls of wind and spitting of the burning fire. All this may contribute to conveying and feeling specific and interesting combination of nature and contemporary music sounds; to listen to bird sounds and new music intonation patterns. Having heard the composition, school children are asked: what did you go through? What experiences were evoked? What are the reasons for such experiences? (e.g., each bird helps each other just like people can help each other...).*

Attempts are made to enable every learner to establish a unique and individual relation with music, to envisage values in them, to be able to admire them and explain the importance of means of music expression to the artistic image of a composition. It is important for a teacher to be an example evaluating music and diverting school learners' statements towards certain direction, i.e. towards sincere, open, emotional sharing of impressions to enable school learners to freely determine and indicate what values nurtured by them are evoked by music.

While organising musical activities during the lesson, organisational challenges are faced. Learners do not tend to share their emotional experiences easily. An unconventional answer provided by a school

student should not be perceived as ignorance. Firstly, they should feel that their opinion is interesting and appreciated.

The main condition for seeking better learning outcomes is school learner's psychological safety, therefore it is necessary to create favourable climate for a child in the classroom. A school learner should not be afraid to ask, make mistakes and to have own opinion different from that of the majority. It is particularly important to help learners to perceive what they feel during musical activities, to convey the content of their emotions, to listen to their opinion about problems that evoke their concern searching for jointly generated answers to the issues worrying them. It is appropriate to ensure that during musical activities schoolchildren learn to respect others and themselves, enjoy attained success, develop ability to listen to the opinion of others just as they listen to the sounding music.

The episode of teaching the song "Mom" (music by R. Sileika, lyrics by D. Teiserskyte) created by contemporary authors and applied in the educational project is presented with *Sincerity* as prevailing attitude.

Introductory conversation. Do you know that your appreciation, support and sincerity are the greatest gifts to your Mom? You are Love, Concern and Anxiety to your Mom. How many nice nuances the word "mother" may have: mummy, mom, mam. This word sounds in your language daily. But sometimes it happens that children say some disrespectful and insulting words (perhaps not deliberately and without any bad intentions). I think that you agree with me that such behaviour is inappropriate. I would like to believe that you do not behave like this. The future of our society depends on the relation between the mother and the child (relations of people). The value of a person is predetermined not by his/her appearance but rather by the internal world and attitude towards the life values. We are going to listen to the music (instrumental phonogram) of the song "Mom" written by a contemporary composer (live performance of the teacher is also possible). While listening to the sounds of music, try to empathise with and imagine the world of mom's (grandma's) thoughts, the state of her feelings (perhaps she is happy: her children are good school learners and help her at home; or perhaps she is worried or calm). Having listened to the song and discussed the lyrics, the melody is taught. Later, after learning the melody, heuristic elements are presented; school learners express characteristics of related emotional states.

Using popular music in musical activities, the following opinions of school learners about this kind of music were highlighted: *"popular music differs from unpopular because it evokes nice feelings and moments"*; *"popular music is trendy; everybody likes it"*; *"pop music is popular all over the world and nobody can resist it"*; *"this is music, which is nice to you and is not expensive at all"*; *"this is, when a person listens a lot to the same music"*; *"this is music, which you are never bored of"*; *"music is popular as it is listened by many people"*.

The practice of education shows that integrating various kinds of music into musical activities not only facilitates development of school learners' musical thinking, trains memory, self-expression but also teaches to concentrate, to focus attention, to hear oneself and others. Moreover, nurturing children's inborn musicality, their esthetical awareness, need for performing music, artistic perception of music, musical ear, voice, memory as well as areas of emotions and feelings are also developed.

Discussing musical experiences, it is important to help children learn their own best qualities, to encourage children to develop them, to enhance self-assessment and to encourage them to ground their behaviour on the discussed values (Rauduvaite, 2016).

Emotional experiences verbalised by school learners reveal the picture of musical activities, when popular music is applied. Singing is one of the most accessible musical activities for school learners in this age group to express themselves using a very sensitive and individual instrument, i.e. their voice. The opinion of school learners about learning to sing: *"You can express your feeling through singing. People like singing"*; *"A person needs singing because singing is relaxing and people would be gloomy without it"*; *"I am happy and I want to sing and sing"*; *"Singing is music spread by a person himself or herself"*; *"I like songs because you listen to words attentively"*; *"A singing person is happy"*; *"Songs make life merry and give a lot of joy. They give birth to a lot of phantasies and nice dreams..."*; *"Singing can be a career. I would like to have a career in music. When I sing, I get carried away into the song, I am merry, the world would not exist without music."*; *"Music helps me learn and think"*; *"A song can comfort my heart and stroke my body"*.

The form of music and its content that reaches young people through information means these days do not always facilitate the choice of appropriate values or identification of their meaning and do not always positively influence development of esthetical taste of school learners. Junior school age learners are susceptible to everything and sensitive to emotional experiences, therefore a targeted influence on their imagination and feelings is particularly relevant. It is quite natural that acoustic environment has impact on the school learner's lifestyle, evokes need for aroused experiences (frequently linked with ear-splitting sounds) and influences musicality.

According to T.A. Regelski (2006), "listening" has to be one of the most important practical activities in educational curricular seeking to enable school learners to understand that music as if conveys the internal life, experience of a person that they are also invited to take part in. Thus, it is important to ensure that while discussing the impressions experienced listening to popular music, school learners are able to assign meaning of associations that are relevant, important or desired to them. On the other hand, emotional state of school learners, their experience is reflected, their efforts to deepen knowledge, to improve character, behaviour become visible and the teacher is given directions in modelling of the educational process.

The following thoughts were expressed by school learners about listening to music: *"Music leads me to the world full of imagination, where everybody is merry and happy"; "You can travel to the forest, fields and heaven together with music. Music is a bird flying above the whole world. Without music all the children would be sad"; "Music provides me with various feelings"; "I access the world. Music sounds everywhere, sometimes my ear starts hurting, sometimes I like being there very much, but when the music ends, I have to leave this world of music"; "Music has made up a considerable part of my life since I understood what is what. The world would be grey without music. It is practically impossible to live without sounds. Music helps me relax"; "When I listen to rock music, I imagine myself singing in the rock concert"; "If music were a human being, it would be my best friend. This is your happiness"; "I relax and travel to very nice islands, towns, flower gardens and the most beautiful places of Lithuania"; "If a person has never listened to music before, a new world may open to him or her, when s/he starts doing it"; "Music takes us to phantasies, kingdoms and dreams.....perhaps those dreams one day may become true. Nobody knows".*

Certainly, organising listening to music, school learners are given the possibility of hearing the composition several times to enable them to penetrate into music and to recognise it. To facilitate joy created by recognition, school learners have to listen to different interpretations, orchestration and arrangements of the same composition, to compare various records trying to identify instruments, to analyse acoustic environment (proportion of music and non-music sounds, sounds employed in contemporary music) and to find visual equivalents of various forms of compositions.

Communication with school learners during musical activities can be fostered if a teacher expresses own feelings and this, consequently, encourages school learners to do the same, if more attention is allocated to school children's opinions and they are given time to think over their answers to open questions and if a teacher applies corrective feedback. This evokes learners' wish to penetrate into the musical activity-situation deeper. Through asking questions and commenting, attempts are made to follow thoughts of another person and to encourage school learners to look to the future.

The educational project allowed to test the possibility of nurturing manifestations of school learners' humanism in primary forms through integration of popular music. They are seen as a need for friendship that provides joy, a sense of understanding and, on the contrary, inhuman relations project dissatisfaction, disappointment, bad feelings and negative relations in the classroom. To support this relevant issue, the intents of activity can be adapted, and characteristic compositions can be chosen.

The episode of teaching the song "You and Me" (music by V. Noreikis, lyrics by A. Cibarauskas) is presented with *Friendship* as a prevailing intent.

Introductory conversation. *Everybody would like to have good friends and to share joys. It is so pleasant, when somebody else tries to listen to you and understands you, respects your opinion and behaves in an honest way, is ready to help you and to do something good. Every day we have to communicate with a lot of people. Sometimes mutual misunderstandings, disagreements and conflicts occur, sometimes we lack friendliness and respect for each other. I would like to believe that disrespect or insulting behaviour does not occur among you. The individual's beauty is reflected in his/her inner world and good*

*behaviour. Let us listen to a song created by contemporary Lithuanian authors. Try to put yourself into the world of own thoughts and feelings and into that of your friend. What mutual feeling of two people will be conveyed through music sounds: friendship or disagreement. Think what you could say to your friend. Listening to music.*

*Having discussed the heard music and text of the song, characteristics of friendship are identified (opinions of school learners: “true friends will always make it up“, “sincere friendship as joy“, “friendship is not necessary as a word, friendship is necessary for you to know that a friend will comfort, understand and listen to you“, “it is sad without friends”). The learners are offered to perform the song in own way (taking into account the voice timber, mimics, highlighting the most important moments in the song) and to imagine various situations of its performing. For example: 1) it is pleasant, when we provide joy to a friend (everybody); 2) everybody has to make attempts to understand experiences of others.*

Thus, through methods of personal meaning and emotional imitation not only individuality of cognitive processes but also the position of the percipient and his/her axiological attitude are revealed. All this enables communication with music in a way that provides with opportunities of better knowledge and understanding of the self and others. According to A. Piliciauskas (1998), it is important to direct psychical activity of learners to their life experience using introductory questions. This serves as a pretext to communicate with the ideal “me” the way communication occurs with others.

## Conclusions

As is common knowledge, the conceptions of music education in different countries emphasise the importance of music education not only in learning music but also in development of a full-fledged personality. The success of music education also depends on the efforts of school learners themselves to perceive themselves as an individual as well as on positive emotions that accompany the process of music education, the evoking of which is related to favourite musical activities, experiences gained during them and created safe educational environment.

Thus, the educational project confirms that creating a coherent, consistent and targeted process of music education, which also integrates popular music, active (personal meaning and emotional imitation) methods of music education can be acceptable and efficient for junior school age children because they create preconditions for development of musicality and presupposition of transferable skills. Participating in activities, a school learner builds up relevant attitudes that condition motives for his/her behaviour. Popular music is liked by and well-known to school learners, therefore it is possible to expand the knowledge of music world in new ways applying the synthesis of the discussed methods and popular music.

All this as if creates a musical pretext to communicate with oneself and others establishing opportunities to look back and forward. This reveals not only individuality of cognitive activities but also a value-based attitude of the percipient. Therefore, this project presents one of the ways how to apply popular music in the process of education: *introduction of the teacher that prepares school learners for perception of musical composition/activities→recognition of musical intonations, living through the composition→identification of musical experiences pointing out the perceived personal meaning→modeling of virtual situation of moral content→decision making→evaluation→respective perception*. It is believed to strengthen links between the musical and value-based world of the school learner.

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## Evaluation of Special Pedagogical Support in Early Childhood Education Institutions: the Attitude of Parents and Teachers

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**Abstract:** The established integration of children with health problems and special educational needs (SEN) into educational institutions of general purpose, a broader spread of ideas of inclusive education have resulted in a need for a new evaluation of accessibility and provision of special pedagogical support to early age and pre-primary children. The aim is to evaluate the attitude of parents and teachers to accessibility and need of special educational support in early childhood education institutions of general purpose. The empirical research is based on the case study, where the accessibility of special pedagogical support to SEN children in early childhood education institutions of general purpose as well as the attitude of parents and teachers towards the need of such support are analysed. While conducting the research, the survey of the teachers allowed to evaluate the situation of children's special education in educational institutions; the qualitative research revealed the attitude of the teachers and the parents to the analysed problem. It was established that the needs of SEN children are only partially satisfied in early childhood education institutions. It appeared that a part of children, who were assigned a complex support, in most cases received only services of a speech therapist in educational institutions of general purpose. Though parents are recommended to choose an institution with a full team of specialists, they tend to choose the one closer to their home, easier to reach or more attractive. The problem question is raised about who is responsible for partial satisfaction of special educational needs of children.

**Keywords:** special educational needs, special pedagogical support, educational support specialists, school education.

### Introduction

Early childhood and pre-primary age is a significant and specific life-time period for children characterised by a unique social, cognitive and emotional expression of a child. O. Monkeviciene (Monkeviciene et al., 2008) mark this developmental period as valuable in itself and it cannot be regarded only as an intermediate period preparing for life. The recognition and evaluation of peculiarity of children's development and their educational needs, individualisation and differentiation of teaching, inclusive education which responds to the expectations of learners with special educational needs, parents of such children and teachers constitute the most relevant problems of scientific research on special education at present.

The majority of scholars have been trying to find the answers to the imposed epochal questions: how to provide the most favourable educational conditions for children, who cannot achieve educational standards due to their developmental peculiarities, disabilities or disorders. Following the child's developmental peculiarities, J.D. Coie, K.A. Dodge (1983), C.R. Greenwood, J.C. Delquadri, J.J. Carta (1997) determine theoretical methodological aspects of recognition, evaluation of special education needs of children and satisfaction of them. Over the last ten years scholars have paid enormous attention to recognition of different skills of children and to the search of new educational opportunities. G. Hornby (1999), A. Kirby, R. Davies, A. Bryant (2005), R.P. Goin-Kochel (Goin-Kochel et al., 2007), L. Haiduc (2009) and others have emphasised the importance of inclusive education and conducted broader research on education differentiation considering diverse educational needs and skills of children. Daily efforts of teachers contribute to changes in educational environments that eliminate obstacles for education of children with different educational needs (Watson, 2001; Wolery, Garfinkle, 2002; Kugelmass, Galkienė, 2003; Farrell, 2003; Dingle et al., 2004; Kirby, Davies, Bryant, 2005). Inclusive education changes the school community into a collaborating team, whose members solve all the emerging problems in a flexible way extending beyond differentiation of education for a specific school learner. L. Florian (2017), L. Florian, K. Black-Hawkins, M. Rouse (2017) emphasise that the values that school culture is based on and relations of its members predetermine a high degree of inclusion and children's learning achievements. J.W. Kugelmass, M. Ainscow (2004) focus on creation of environments that are favourable for education. The authors have emphasised the importance of integration and inclusive education, flexibility of school system seeking to consider the variety of needs

of school learners and their parents. Though the methods of special pedagogical support and their application in the practice of education have been intensively researched, the systemic scientific research studies have been scarce particularly regarding special pedagogical support in schools working according to early childhood and pre-primary education curricular.

Early age SEN children (from 3 to 6–7 years) are educated in general or special groups of early childhood education institutions, specialised early childhood education or other institutions of special education. Specialised groups admit SEN children (up to 7 years) with severe and profound special educational needs. On the request of parents, such children can be educated in general purpose or specialised educational institutions. In a general early education institution, a child is educated together with children without any developmental disorders and is entitled to necessary support of specialists. However, most frequently only one specialist is available in nurseries-kindergartens, where early childhood and pre-primary (hereinafter – ECPP) teachers without special preparation face difficulties daily. The main problem is the lack of special pedagogical support specialists in early childhood education schools and insufficient adaptation of educational environments to SEN children.

The research conducted by O. Monkeviciene (Monkeviciene et al., 2008) proved that half of early childhood education institutions apply integrated education of SEN children and one tenth educate such children in specialised groups.

At present the need for significant changes in the system of education has been emerging. The person's life is going on in the space, which is predetermined by certain conditions. Under conditions of inclusive education high quality pedagogical interaction and respect-based environment both in the family and at school become of utmost importance. Inclusive education requires preparation of community members in educational institutions including adaptation of environments, choice of educational aids and, what is most important, team work of participants in the process of education. However, only possibility for education of SEN children in an educational institution of general purpose is not enough. According to every child's capabilities, it is necessary to engage all the learners into educational activities, which have to be adapted and meaningful to each of them. A condition for successful education of SEN children is appropriate preparation of teachers as well as accessible specialist support, when it is necessary.

**The aim of the study** is to evaluate the attitude of the parents and teachers towards accessibility and need of special pedagogical support in early education institutions of general purpose.

### **Methodology**

The conducted research was based on the humanist personality education theory and the empowerment theory. The humanist theory (Rogers, Freiberg, 1994; Maslow, 1971) emphasises the person's freedom, the pursuit of self-actualisation, development of inner abilities considering the principles of the theory that an individual is goal-oriented, able to actively seek it and behaves positively in cases when realisation of internal nature is not impeded. Working with individuals suffering from disorders a deep personal contact between two people is much more important than treatment or diagnostics. The main "tools" of support include empathy and unconditional positive attention to a client. The empowerment theory is grounded on stimulation of internal changes and person's education.

The research was conducted in the period of 2016-2017. It included 29 early childhood education institutions attended by 4449 children. The population of working ECPP teachers equalled 480 specialists. Collecting primary empirical data, the methods of document and statistical data analysis were used. The information on educational themes available on the website of X municipality, reports, strategic development plans was studied and the analysis of the situation of early childhood education was conducted based on the collected data. During the research the information publicly available on the internet websites of early childhood education institutions on the services accessible to a child and his/her family, the numbers of child support specialists and their activities was also used.

The oral interview was used to survey the teachers of nurseries-kindergartens and parents. The sample of the qualitative research was compiled applying *the method of snowball*, when the units of the sample are selected among the people, who know people that are aware of informative cases worth including into the research. Following this principle, the sample embraces units that are relevant to the research and high-quality data are collected. The criteria-based selection was applied, when the researchers

themselves decide on what respondents have to be selected and insights are drawn only about the chosen group or the analysed phenomenon.

All the respondents in the questionnaire survey were teachers (N=35), who work in early childhood education institutions. Applying the criteria-based selection, the informants were chosen according to the following criteria: work in early childhood education institution of general purpose; work in a group with integrated SEN children; at least 3 years of experience of working with SEN children. The parents included into the sample (N=6) had to meet the following criteria: to have an early age child with severe SEN; their child attends an early childhood education institution of general purpose.

The direct interview with every informant lasted about 15-20 min. The participants were introduced to the goal of the interview and the topics to be discussed in advance. The answers to the questions were written down and clarified later with every informant. The data collected during the interview were analysed distinguishing categories and sub-categories and generalised using the content analysis, which is appropriate for processing qualitative research data. The categories and sub-categories make the essence of the content analysis (Kondracki, Wellman, Amundson, 2002).

Conducting the analysis of qualitative research data, it was clarified how special pedagogical support to a SEN child is organised in an early childhood education institution, what difficulties are encountered by SEN children and their parents and what services are required by parents.

The research was done applying several **methods**: document analysis, semi-structured interview, qualitative research data analysis.

## Results and Discussion

Following the data presented by the municipality of X city, the number of children attending early childhood education institutions has been decreasing over the last 10 years (4480 children in 2014, 4460 children in 2015, 4400 children in 2016). Optimising the network of early childhood education institutions, the model of institution merger was chosen, which led to reducing job places of teaching staff and specialists. The reforms have been initiated because of the demographic situation in the country, emigration, an increase in the number of children in groups and the still continuing educational reform.

In the city 6 nurseries-kindergartens have been providing educational assistance to children with more severe special educational needs, where specialised groups for children with language and communication disorders, visual and hearing impairments and complex disabilities are available. Over a year the Pedagogical Psychological Service (PPS) evaluates over 1000 early age children and about 200 school learners, who encounter various educational difficulties. Evaluation of children's abilities most frequently disclose various cognitive, language, behaviour or other problems, disabilities, disorders or impairments, which can be of temporary (e.g. 1-2 years) or permanent character and then specialist support is recommended. Though all the SEN children attending nurseries-kindergartens of general purpose in the city have access to the speech therapist's assistance, only few get support of a special education teacher, a psychologist, a social educator or kinesiotherapist because there are no such specialists in the majority of institutions. Ambulatory services of special pedagogical and psychological support are under-developed, and children particularly lack complex assistance. Meanwhile the reports of public health specialists show that out of all the early age children, who underwent prophylactic medical examination in 2016, only one third were absolutely healthy (mainly visual impairments, cardiovascular diseases, muscular-skeletal disorders prevail).

Seeking to establish the accessibility of special pedagogical support, the supply of services provided to early age children in the city (reflected on the internet websites of institutions) was more comprehensively analysed. During the research, an attempt was made to identify the distribution of child support specialists in early childhood education institutions. The results revealed that 92 specialists work in early childhood education institutions in the city. The majority of them are speech therapists (57), only 10 special education teachers and only several specialists of other areas are available. In educational institutions of general purpose only 3 special education teachers, 1 social pedagogue, 2 psychologists and 2 kinesiotherapists work next to speech therapists there. Thus, the majority of nurseries-kindergartens lack teams of child support specialists. It can be assumed that a considerable part of functions of special pedagogical support in institutions are performed by speech therapists or group

teachers, who do not have any special preparation. If a team of specialists is not available in an institution, a complex support to SEN children is impossible.

The analysis of the teachers' interviews allowed to distinguish the following categories: *Problems of children education; Demand for child support specialists; Improvement of system of special pedagogical support.*

The sub-categories, such as *organisation of education; child's powers and faced difficulties; communication with participants in the educational process*, show that the teachers in the research provide evaluation of their abilities to work in a group with integrated children suffering from severe SEN. The teachers indicate problems encountered organising educational activities, distributing attention and differentiating assignments. They also point out that they lack specialised knowledge and experience in solving problem-based situation: *Work with a SEN child is most frequently individual, therefore other children do not receive sufficient attention; It is most difficult to equally allocate attention to everybody during the class, that is why, the main attention is allotted to a child with disorders, a particularly agile child, while the others will stay excluded; Preparation of special tasks is highly time-consuming, sometimes it is not clear what tasks should be selected to such children because they do not understand and do not possess fundamental knowledge.* Possessing experience in teaching work, the teachers have no problems identifying the child's powers and his/her faced difficulties, they are also aware of the abilities that children of a certain age have to possess: *They are able to retain attention only for a very short period of time; They do not understand tasks, they need a lot of explanation; problems of understanding, lack of attention and will; They are very absent-minded, with stormy emotions and unpredictable behaviour; If a hyperactive child is in a group, she/he as if shakes other children and then they all become uncontrollable.* The teachers encounter problems understanding the speech of children with language and communication disorders, when they speak little or do not speak at all: *during activities behavioural problems of such children emerge, you cannot understand them; undeveloped language creates obstacles; when they cannot express themselves, they start shouting.* The respondents stated that it is not easy to communicate with parents of children with developmental disorders, when they expect a special attention to their child from the teacher, though there are 20 other children in the group, who need just as much attention: *Mothers imagine that the teacher is going to follow such a child all day long and to satisfy all his or her needs but this is impossible; Parents themselves are strained under such a situation, therefore communication with them is not always successful; <...> insufficient knowledge of how to behave when problems with children and parents emerge.* Generalisation of the analysed texts highlighted the problem areas faced working with SEN children: difficulties in organising activities; difficulties of working with SEN children; difficulties in communication with children and cooperation with parents, problems of group management.

The category *Demand for child support specialists* in the texts was unfolded into the following sub-categories: *activities of specialists in activities, specialist support to SEN children and teachers.*

The research shows that ECPP teachers envisage the meaning of child support specialists in an early childhood education institution and understand the goals of their activities. The respondents working in different institutions expressed similar opinions – long-term specialist support provided in an institution is undoubtedly important to SEN children just as collaboration with teachers and children's parents. The teachers state that: *Specialists are prepared to work with children suffering from disorders; Specialists can work individually and allocate more time to a child; More intensive collaboration with the group teacher and parents is necessary; The children's parents need advice and recommendations; Specialists can help teachers adapt programmes and choose methods; A specialist has to help chose ways and content of activities; A specialist professionally discusses and provides well-reasoned recommendations.* Some participants highlighted the need for work of child support specialists together with the teacher in the group and pointed out that it is useful to hear recommendations from a specialist. Generalising, it can be stated that ECPP teachers envisage limitations of their work with SEN children, are able to indicate arising challenges, to identify when the specialist's help is needed. There were no participants in the research who doubted the necessity of child support specialists in an early childhood education institution.

The participants in the research were asked to express their opinion about the need for child support specialists in general early childhood education institutions. The category *Improvement of system of*

*special pedagogical support* is disclosed through the sub-categories: *demand for child support specialists, possibilities for developing services of support to a child.*

The research data allow to state that early education teachers with practical work experience are confident about the need of a specialist team (a special education teacher, a psychologist, a speech therapist, an assistant teacher and a kinesiotherapist) in every educational institution. Psychologists, special education teachers and assistant teachers are at particular request in general nurseries-kindergartens. The necessity of specialists in educational institutions is obvious but the participants expressed their concerns about finances: *The institution does not possess enough finances to establish new positions for specialists; Employing new specialists, everybody will have to save finances.* To improve the functioning of educational assistance, it is recommended *to increase responsibility of the community of an institution for performance results; to invite a team of specialists into an institution, who could provide SEN children with short-term consultative assistance.* It is acknowledged that *all the community members in an institution have to cooperate.* The early education teachers request more professional development events, trainings and emphasise the importance to enhance collaboration with SEN children's parents engaging them into the process of education planning and assessment.

During the interview the parents were requested to answer the questions on the basis of personal experience and to express own attitude towards the analysed problem. The parents were asked about difficulties encountered in children's education, motives for choosing a kindergarten, accessibility of special pedagogical support and expectations regarding improvement of special pedagogical support.

After the analysis of the content of the parents' statements about the most frequently faced challenges in SEN children education, the following categories were distinguished: *Communication, Emotions and Behaviour, Education* (Table 1).

Table 1

**The difficulties encountered by parents in education of their children with special educational needs**

Category	Communication	Emotions and Behaviour	Education
Subcategory	1. Communication difficulties	1. Management and control of emotions	1. Child's powers and encountered difficulties
	2. Difficulties in language understanding	2. Conflicting behaviour and disobedience	2. Problems of educational motivation

The analysis of parents' texts showed that *communication difficulties* and *difficulties in language understanding* are frequently encountered when children are diagnosed with language development disorders: *For example, we have problems in making us understood; <...>, others do not understand him at all; He does not allow everybody in, sometimes he chooses whom to talk to and whom not to; I understand that sometimes it is not clear for the people around her what she wants, sometimes it is necessary to ask several times before the girl says or shows something <...>.*

The statements within the category *Emotions and behaviour* emphasise *management and control of emotions* and *conflicting behaviour and disobedience*. The parents complain that they are not always able to understand their children's mood and to stop children's mischief: *The mood change is very common; When something makes him angry, it is very difficult for him then, but if he is in a good mood, it is peaceful at home as well; I am not always successful in managing my child's behaviour and this makes me desperate; sometimes the child is obedient and then everything is all right.* Due to language disorders, undeveloped language, emotional and behavioural disorders children are diagnosed with severe SEN, therefore it is quite clear why namely those difficulties are first mentioned in the parents' statements. It should be mentioned that problems of children's management, just like formation of necessary self-help skills, are some of the most relevant themes. Indicating educational challenges, the parents singled out children's powers and faced difficulties as well as lack of educational motivation. The identification of their child's powers was one of the most complicated tasks for the parents in the research. Parents are still under influence of a stereotypical attitude – speaking about education of SEN children the focus is laid on their weaknesses rather than strengths. Specialists and teachers of

educational institutions have to more frequently consult parents explaining what a child has learnt or can already perform. The most frequent early education problems among SEN children include: disbalanced child's communication with environment, disability to concentrate and retain attention, to master educational material, to complete tasks on time. They also lack motivation for learning and participation in joint activities with other children.

The parents in the research were asked about the motives of choosing early childhood education institution. Processing of the statements highlighted three categories: *Location of an institution*, *Educational environment*, *Accessibility of support*. The category *Location* is determined by two subcategories – *Close distance from home* and *Convenient location*. The following statements prove the importance of distance of an institution to their home: *The kindergarten is close to home and almost in the yard, it suits us; We live nearby, it is convenient; There is a good access, not far from the main street; The kindergarten is not far from my working place, convenient access. Staff and Safe environment* that meet the parents' expectations are not less important motives choosing an educational institution. The above-mentioned categories are grouped on the basis of the following texts from the interview: *I saw a kindergarten before choosing it, I liked the teachers; <...> a child gets help here <...>, he is understood there; I leave a child calmly there, I rely on the teacher; I think that my girl is very safe, the teachers nicely communicate with her and understand her; Our child faces more problems than others, he needs a particularly quiet environment*. The parents emphasise that their children receive support of specialists (most frequently speech therapists) in the chosen educational institution: *Very good teachers are working in the kindergarten as well as speech therapists with huge experience; The speech therapist is most frequently working with a child, but sometimes there comes a coach, my child plays basketball; I receive help. <...> Everything suits us, the speech therapist knows her job very well*. Other people's feedback on services provided in the nursery-kindergarten is equally important. The parents note that children have an opportunity to stay in an on-duty group, to develop their artistic skills attending artistic education classes and to attend basketball, robotics, dance classes (Table 2).

Table 2

**Motives for choosing an early childhood education institution**

Category	Location	Educational environment	Accessibility to support
Sub-category	1. Close distance from home	1. Staff	1. Specialists
	2. Convenient location	2. Safety	2. Services

The area of *accessibility of special pedagogical support and its provision* is revealed through the categories *Need of special pedagogical support to a child* and *Involvement of parents in the process of special pedagogical support to a child* (Table 3).

The subcategories *evaluation of special pedagogical support to a child* and *need for support to SEN children* revealed the parents' attitude towards significance of special pedagogical support to a child: *More specialists are needed in a kindergarten, who could help to educate a child, who could also provide more services – a psychologist, a masseur; The PPS suggested changing a kindergarten, attending a specialised group but we rejected the recommendation because we were afraid that a child will be among weaker children; I am sure that my child will get better education in a general kindergarten, though more support in such cases could be available here*. The parents see and understand that the child's needs are not always satisfied in a kindergarten due to an obvious shortage of specialists: *Professional support is insufficient, particularly that of a psychologist, a special education teacher, a social pedagogue and a movement specialist; Children should be provided with more support from specialists; it would be best if professionals could work with children every day*.

The texts of such subcategories as *parents' information, teaching and consulting* and *collaboration between parents and teachers* show that parents are eager to cooperate with teachers and specialists, but they are not sure if they are able and know what to do in specific situations. In more complicated cases parents feel helpless and want to be consulted: *Most frequently I am asked to wait behind the door while the specialist is working with my child; Parents have to be provided with more information, specialists also have to help them because we do not know everything <...>; Specialists could consult parents via Skype; It would be necessary to teach parents how to deal with a difficult child at home, more lectures*

*and trainings are needed; A specialist is able to better cope with my child than me, let him or her work because I can fail to understand something <...> (Table 3).*

Table 3

#### Accessibility of special pedagogical support and its provision

Category	Need of special pedagogical support to a child	Involvement of parents in the process of special pedagogical support to a child
Sub-category	1. Evaluation of special pedagogical support to a child	1. Parents' information, teaching and consulting
	2. Need for support to SEN children	2. Collaboration between parents and teachers

The analysis of the research texts shows that the parents evaluate the work of specialists positively and are happy if their children get support from a speech therapist. They also understand that such support is not sufficient to the majority of SEN children. It can be concluded that special pedagogical support in general early education institutions only partially satisfies the children's needs. The parents expressed a wish to have a bigger variety of educational support specialists in an institution, to receive assistance more frequently, which is not confined only to the speech therapist's work. The parents would eagerly involve into the process of support, would cooperate with specialists if they were properly trained and received constant consultative support. It should be assumed that specialists do not sufficiently trust parents and at present do not consider parents to be equal partners, therefore assume the larger responsibility in the process of activity planning themselves. The parents acknowledge that the lack of specialists in an educational institution of general purpose is a huge problem and understand that an educational institution is not capable of providing all the services of educational support to children with serious SEN but hope that a favourable educational institution, education together with peers and responsibly working teachers are able to compensate insufficiency of targeted pedagogical support.

#### Conclusions

Special educational needs of children are only partially addressed in early childhood education institutions because long-term support is provided only by speech therapists. Specialist teams work in two general early childhood education institutions and in six ones with specialised groups in the city X. Despite recommendations from the Pedagogical Psychological Service, some parents tend to choose general early education institutions for their children with more severe SEN because they are closer to their living place or have good recommendations from other parents or their other children have already attended this institution. If special pedagogical support specialists are not available in institutions, a number of children do not receive any targeted long-term support before the start of formal learning.

Teams of special pedagogical support specialists are not available in general early childhood education institutions, therefore communication of specialists assuring quality of SEN children education is limited. The majority of functions assigned to special child support specialists are performed by speech therapists and teachers without special preparation in early childhood education institutions. ECPP teachers lack deeper knowledge necessary for work with SEN children; therefore, they encounter considerable challenges in the process of education. On the other hand, speech therapists are not able to embrace all the areas of special pedagogical support due to big workload and specifics of their professional activity.

The parents of SEN children, who choose general educational institutions, express positive attitudes towards the support provided by specialists (speech therapists) working in them, they are interested in educational perspectives of children with disorders and are open for communication with teachers. The thoughts expressed by parents in the research about the motives of choosing an early childhood education institution, the necessity of special pedagogical support and its provision, expectations regarding development of support in an institution reflect to a positive attitude and an inclination to become active members of a team providing support to a child.

The accessibility of special pedagogical support in early childhood education institutions could be assured by a sufficient number of specialists (speech therapists, special education teachers, social pedagogues, assistant teachers, kinesiotherapists) in early childhood education. Professional long-term

support would be accessible to SEN children, if, having reviewed their internal resources and implemented structural changes or having grounded the necessity for special pedagogical support, educational institutions established job positions for necessary specialists. Mobile teams of specialists could, at least, partially compensate unavailable services, providing special pedagogical support to children and consulting their parents and teachers. It is important to strengthen collaboration between the community of an institution and parents of SEN children assuming responsibility for the process of SEN children education and its outcomes.

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## Modern Educational Domain: Bilingualism and Multilingualism in Teaching Foreign Languages

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**Abstract:** Russian academic society has traditionally been considered linguistically and culturally homogeneous. However, during the last two decades there was observed a notable shift towards heterogeneous zooming in teaching field due to specific social, demographic and political changes. The topicality of the research is stipulated by linguistic and cultural fusion due to increasing number of people speaking two or more languages globally. The research goal is to prove that a teacher being natural bilingual and multilingual can be far more effective and impactful in the educational process than an artificial bilingual and multilingual one. To envision possible prospects and benefits of natural bilingual and multilingual teachers within modern educational domain a special study was conducted. The research involved two pools of the participants: the students (220 students in general) and the teaching staff (26 teachers) at Plekhanov Russian University of Economics. After each experiment session all participants were encouraged to fill in Self-Reported Questionnaire (SRQ) and to pass Free association test (FAT). Both of the monitoring instruments are implemented to verify each other to reveal and assess students' attitude to the teachers' input into "enrichment" of the educational process and consecutive boost in students' linguistic and metalinguistic abilities. The authors put forward hypotheses suggesting there is a link between students' assertiveness to be more involved in foreign languages learning process with natural bilingual and multilingual teachers and such interaction within cultural linguistic framework may be appealing to all students. The results obtained through SRQ and FAT demonstrated the impressive rise of students' engagement into the educational process and significant boost in motivation after the second session of the experiment. The aforesaid witnesses that such vector shift in the learning process is seen in its overall introduction into the academic setting in order to upgrade modern educational environment and specifically in teaching foreign languages.

**Keywords:** modern educational domain, bilingualism, multilingualism, university education.

### Introduction

It has been noted that social mobility is on the steady rise in the modern global world in the second half of the twentieth century and at the beginning of the twenty first century. The underlying causes for this phenomenon are historical, economic, political and social ones. Wars, significant political upheavals like the USSR collapse, new long-lasting military conflicts with a large number of refugees, rising unemployment rate and other social reasons forced people to flee in search of safety and better living standards. This leads to lingual and cultural interblending which in its turn initiates language specific, communication and integration issues which are highly relevant in present-day conditions. The result of all these processes is that increasing number of people can speak two or more different languages. Natural consequence of such tendency has become reinforcement of the phenomena of bilingualism and multilingualism.

*The aim of the research* is to prove that a teacher being natural bilingual and multilingual can be far more effective and impactful than an artificial bilingual and multilingual one within a modern educational domain.

### Methodology

The authors set a goal to demonstrate that multilingual teachers are more interactive and perceptive to students' needs and requirements, being able to demonstrate a set of specific features inevitably influencing a process of teaching foreign languages.

The research goal states its objectives to determine inherent constituents of those features, to assess their contribution to learning practices and academic achievements of the students, and to obtain students' feedback on distinguishing any differences between artificial bilingual and natural bilingual or

multilingual teachers in ways of interaction, materials representation, and influence on their motivation to actively participate in educational activities.

As modern university students tend to demonstrate self-centred positioning and claim to be able to access all subject-matter information, there is a vital need to interpose something brand new to get them interested. This very fact triggers an issue on a new interpretation of teacher's competencies that should meet diverse and excessive needs of the university youth fostering them to imply their background knowledge and skills in a beneficial way.

Consequently, the authors of the research paper put forward a hypothesis whether there is a link between students' assertiveness to be more involved in educational processes with natural bilingual or multilingual teachers than in those conducted by artificial bilingual or multilingual ones. They also hypothesized that interaction within cultural linguistic framework of natural bilingual and multilingual teachers may be appealing to all the students independently from them being monolinguals, bilinguals or multilinguals, as these teachers tend to demonstrate "switchover" abilities, flexibility and sensitivity to cultural and linguistic diversity of the students.

**Participants.** The research involved two pools of the participants. The first pool was represented by the students (220 students in general: 118 first year students and 102 third year students at C1 English level at Plekhanov Russian University of Economics). The second pool was represented by the teaching staff (26 teachers) of Chair of Foreign Languages #2 at Plekhanov Russian University of Economics.

The students' pool characteristics: 126 students identified themselves as being artificial bilinguals (with consecutive acquisition of a foreign language), 73 students identified themselves as being natural bilinguals but artificial multilinguals (with simultaneous acquisition of first two languages and consecutive acquisition of a foreign language), and 21 students identified themselves as being natural multilinguals (with simultaneous acquisition of first three languages and consecutive acquisition of a foreign language). The teachers' pool characteristics: 13 teachers identified themselves as being artificial bilinguals or multilinguals (with consecutive acquisition of a foreign language), 10 teachers identified themselves as being natural bilinguals but artificial multilinguals (with simultaneous acquisition of first two languages and consecutive acquisition of a foreign language), and 3 teachers identified themselves as being natural multilinguals but artificial multilinguals (with simultaneous acquisition of first three languages and consecutive acquisition of a foreign language).

The participants were informed about the purpose of the research and voluntarily participated in it.

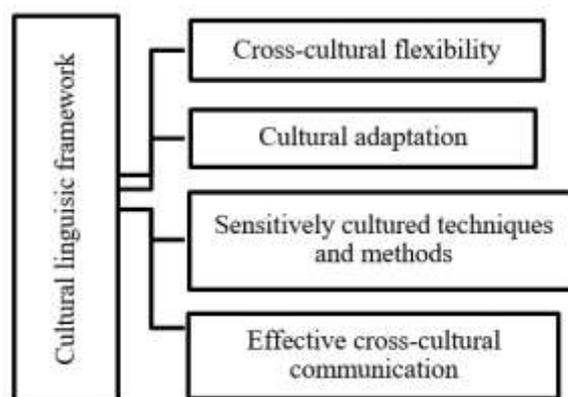


Figure1. Cultural linguistic framework (specific factors in teaching foreign language).

**Methods.** The authors of the paper suppose that the methods of the research should be selected considering a cultural-linguistic framework incorporating the four indispensable components. This framework is believed to be applicable to show dissimilarity among teachers with various linguistic characteristics, as it is aimed at the criteria that do not reflect literacy and language proficiency as teacher's professional competencies but highlight complex extra linguistic phenomena. These are represented in Figure 1.

Self-Reported Questionnaire (SRQ) was used to assess students' attitude to the teachers' input into "enrichment" of the educational process and consecutive boost in students' linguistic and metalinguistic abilities. In order to validate SRQ results concept analysis through Free association test was applied.

The concept as a basic cultural cell in a person's mentality focuses on the meaning of a sign. It is reflected in person's comprehension, ideas and implications about the images of the world at a linguistic and cognitive level. It shows basis that the person imports into a concept and indicates the level of its perception culturally and linguistically.

The concept is a multilevel mental structure which includes sound cover of the word, supposition, comprehension, adaptation, evaluations, relations (Pishchalnikova, Rogozina, 2004). Thus, the interrelationship and their possible modulation at the functional and dynamic level between the concept's steady components manifest the appearance of a new content concept.

**Procedure.** The research was divided in two sessions. The first session lasted 4 months (first term due to the University curriculum). The students' pool of participants was explained that their English classes would be conducted by the 13 teachers who are artificial bilinguals or multilinguals (with consecutive acquisition of a foreign language). They were informed that their feedback would be collected through SRQ and word association responses after the first session and after the second one. The students were provided with all the necessary instructions.

Self-Reported Questionnaire was structured in a way to verify the authors' hypothesis on the distinction of potential input by the teachers with different linguistic characteristics in the effectiveness of educational process and students' academic achievements. So, it incorporated the two blocks: the first was aimed at measuring common teacher's competencies while the second – at measuring students' sensitivity to teacher's cultural and linguistic characteristics:

- Was the teacher articulate and coherent in representing new materials?
  - Did the teacher's assignments appropriately meet challenging students' expectations?
  - Was the teacher good at selecting and adapting resources in a learning process?
  - Did the teacher manage to master lesson content in accordance with students' expectations?
- 
- Was the teacher able to take advantage of cultural and personal experiences and resources?
  - Was the teacher proficient in "bridging languages" while making implications in case of being asked to exemplify some phenomena in different languages?
  - Did the teacher manage to demonstrate divergent and creative thinking via sensitively cultured techniques and methods?
  - Did the teacher run classes in the conditions of cross-cultural communication environment effectively?

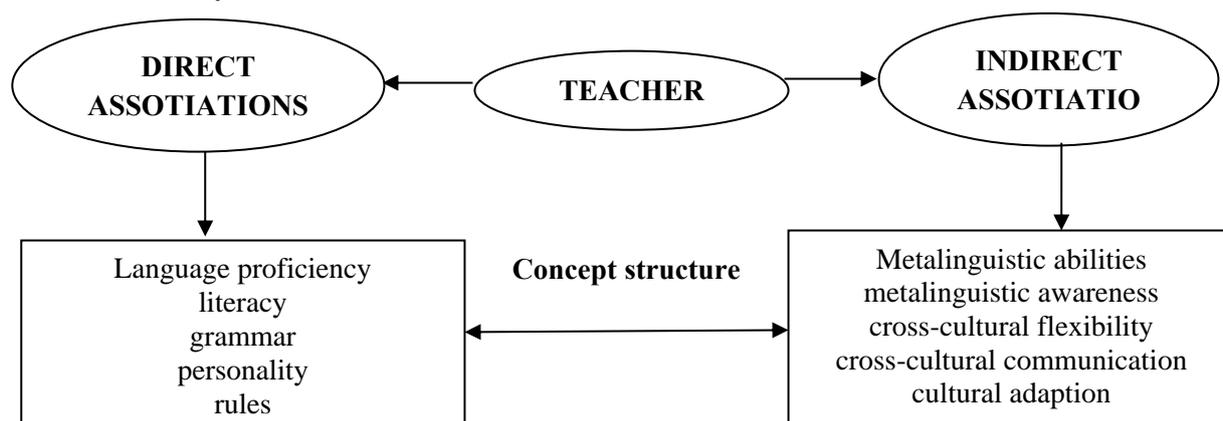


Figure 2. The model of Free association test.

The FAT incorporated 10 words (Figure 2). Five of them were designed as direct associations to specify the students' views and understanding of the concept "teacher" related to common teacher's competencies. The other five words and word combinations were used as indirect associations to reveal students' attitude to the cultural-linguistic framework of a teacher as a subcompetency. Tests were handed out to the students' pool of participants together with a request to fix next to stimulus word or word combination the first association which springs to their mind. Each student identified their linguistic characteristics on the test.

The second session lasted 5 months (second term due to the University curriculum). The students' pool of participants was explained that their English classes would be conducted by the 13 teachers who are natural bilinguals but artificial multilinguals (with simultaneous acquisition of first two languages and consecutive acquisition of a foreign language), and natural multilinguals (with simultaneous acquisition of first three languages and consecutive acquisition of a foreign language), artificial bilinguals or multilinguals (with consecutive acquisition of a foreign language).

After the second session, the same SRQ form and FAT were again submitted to the students. The sessions were based on the course book *Market Leader Intermediate 3<sup>rd</sup> Edition Extra* that consists of 12 units. Each unit has 5 sections: discussion, texts, language work, skills, and case study. Moreover, there are four additional chapters on working across cultures. In reading section students were able to acquaint themselves with authentic articles on a variety of business issues. Except for developing reading skills and perceiving essential business vocabulary students discussed ideas highlighted and detailed in the articles. Listening section is aimed at perfecting listening for information and note-taking. Language review section clarifies problematic fields at this level. Skills section focuses on developing vital business communication skills, and application of English in social situations. Case studies contain realistic business issues or scenarios which allowed students to use language and communication skills. The four additional chapters "Working across cultures" point out various aspects of international communication which helped students to raise their awareness of possible issues that may emerge while having business affairs with people of different cultural backgrounds.

The authors of the research suppose that this very content (considering its cultural diversity) can be considered as contributing to a foreign language teacher's cultural linguistic framework activation and corresponding responsive reaction from students.

## Results and discussion

### *Theoretical Background of Empirical Research*

Some scientists emphasized terminological problems with bilingualism and multilingualism. U. Weinreich (1953) considers bilingualism as a practice of turn-based language use. F. Grosjean (1992; 2010) describes bilingualism as a regular use of two and more languages. V. Vildomec (1963) clarifies that bilingualism is a mastery of two languages whereas multilingualism is a command of more than two languages. According to some scholars, bilingualism is considered as «*a variant of multilingualism*» (Herdina, Jessner, 2002, 52). In this article the authors refer to bilingualism as knowledge/use of two languages, and multilingualism – as more than two languages.

A wide range of classifications of bilingualism and multilingualism exist. Bilingualism and multilingualism can be divided into state and individual. C. Baker makes a distinction between «*bilingualism as an individual characteristic and bilingualism in a social group, community, region or country*» termed «*individual bilingualism and societal bilingualism*» (Baker, 2001, 2). In the USSR with population 250 million people fourteen out of fifteen former republics represented a situation with a state bilingualism. Such countries as Canada and India exemplify a state bilingualism. Switzerland and Belgium are bright examples of a state multilingualism. Modern Russia with 150 million people population is a multinational country with a high proportion of bilinguals and multilinguals. As for an individual bilingualism, it shouldn't be left unmentioned a famous Russian and English writer V. Nabokov. Speculating on his bilingualism he compared the command of his English and Russian saying that his Russian was far looser than English, and the difference between them was the same as between a semi-detached house and a mansion (Nabokov, 1981). It is considered that a person is practically unable to master two and more languages identically well: one of the languages they speak, or use is dominant, or at least it's a very rare phenomenon called a balanced bilingualism which implicates an «*equal and strong competence*» in two languages (Baker, 2001, 29). This thesis is illustrated by the abovementioned example with V. Nabokov.

Analysing the phenomenon of bilingualism and multilingualism it is worth mentioning artificial and natural types. The natural type occurs in a relevant linguistic environment (in a natural context), which means that a language is acquired «without any special tuition» (Saunders, 1990, 115). The artificial one implies mastering of a second, third or next language in a teaching or academic environment (Hansen, 2008).

W.E. Lambert (1974; 1977) identified two types of bilingualism: additive and subtractive. Additive bilingualism means that a second foreign language does not drive out the first. The subtractive type indicates that a second language substitutes the first. This type might be exemplified by bilingual immigrants who no longer use their first language actively but still understand it.

There could be differentiated an active and passive types of bilingualism. The former type actively communicates in both languages, while the latter – in only one of them. C. Baker (Baker, 2001, 18) gives the following description to passive bilinguals: «*Some listen with understanding and read a language but do not speak or write that language. Some understand a spoken language but do not themselves speak that language*». For instance, providing a person both understands and speaks Russian and English, he is considered to be an active bilingual. If a person understands both of the languages, but speaks only one of them, he is described as a passive one.

Some scientists implement different terms for bilinguals such as dual language learner (Paradis, Genesee, Crago, 2011) or L2 user (Cook, 2013). V. Cook (Cook, 2013, 46-49) argues that they cannot be simply described as monolinguals with additional knowledge, they differ from monolinguals in many ways, such as the following:

- L2 users think in slightly different ways from monolinguals;
- L2 users use language in different ways from monolinguals;
- L2 users have an increased awareness of language itself compared to monolingual;
- L2 users have a slightly different knowledge of their first language;
- L2 users have different brain structures from monolinguals.

C. Baker (2001) claims that knowledge of two languages inevitably encourages to reflect upon a language itself, its functions, to focus on common features of both languages, to be conscious of your native language and to perceive it as a subject of speculation but not as a means of expressing thoughts. This leads to a “special awareness” in linguistic operations.

According to numerous researchers (Bialystok, 1991; Bialystok, 2001; Bruck, Genesee, 1995; Chen et al., 2004; Cummins, 1978; Galambos, Goldin-Meadow, 1990; Yelland, Pollard, Mercuri, 1993), bilingualism and multilingualism improves metalinguistic abilities of a person. Metalinguistic awareness contributes to teachers’ universal and cultural literacy and expertise, enriches background knowledge and enhances professional competence. In case of bilingualism and multilingualism a teacher masters two and more languages, applies his knowledge and skills immediately in the classroom and transmit them to students. Thus, bilingualism or multilingualism provides more conscious attitude to a language developing metalinguistic and cultural awareness.

Generally, while studying a second foreign language an authentic communication does not take place in the classroom being simulated artificially to a greater or lesser degree of success. The authors are assured that metalinguistic and cultural awareness which is evidently a result of being bilingual or multilingual puts down to teachers’ efficiency in a classroom environment. In this work the authors have made an attempt to measure teachers’ effectiveness in the classroom comparing natural and artificial bilinguals and multilinguals among teaching staff members of foreign languages chair#2 at Plekhanov Russian University of Economics. The aim of this study is to focus on teaching staff individual natural and artificial bilingualism and multilingualism as applied to criteria of efficiency in the classroom and boosting motivation among students.

A traditional teacher is an authentic linguistic personality possessing conditioned mentality of one culture, a specific one-angled picture of the world and the system values, adhering to certain cognitive approaches, behavioural and communicative norms (monolinguals). Providing a teacher is a natural bilingual and multilingual, his profile has been transformed into an educator with secondary or even tertiary linguistic personalities whose linguistic picture of the world as a part of the conceptual whole easily switches from one layer to another. Moreover, natural bilingual and multilingual teachers can be considered unique and irreplaceable from professional point of view as they are able to exist in two and more conceptual dimensions where the perception of one culture is not filtered and distorted by another culture or experience, traditions and values as these layers cohabit independently in their consciousness. Their natural cultural competence as an ability to function effectively in multicultural settings allows them to become active reflective mediators

and to establish strong academic and social networks of a wide variety. Main elements as competitive advantages of this new type of educators are as follows (Figure 3):

- multilevel presupposition implies preliminary or background knowledge which embrace general knowledge about surrounding community, narrow-format knowledge (some specific knowledge which is relevant to the given situation), and linguistic knowledge;
- cross-cultural flexibility is a teacher’s ability to orientate in a new cultural environment, to facilitate a teacher-student or student-student communication by easily adapting to a different culture;
- diversification of values, beliefs, norms and standards is a strategy applied by a teacher to selectively use those values, beliefs, norms and standards which are appropriate for the given communicative situation.

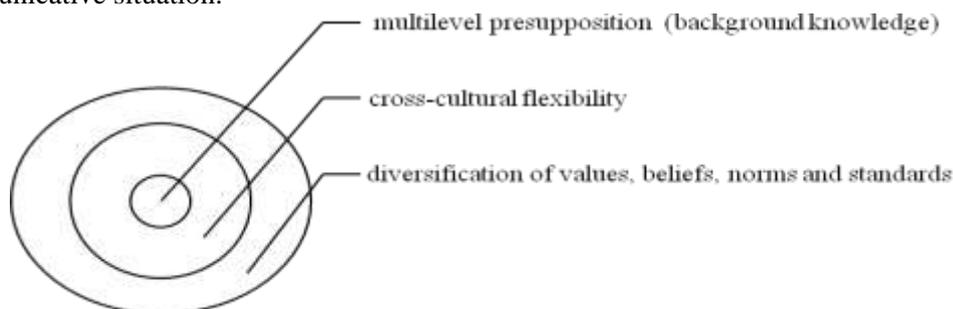


Figure 3. The competitive advantages of bilingual and multilingual teaching staff.

These above listed elements as competitive advantages of bilingual and multilingual teachers have already been recognized and appreciated by academic environment which is promoting metalinguistic and cultural competencies within the university community.

### Results of Empirical Research

The SRQ allowed revealing some shifts in the distinction of potential input by the teachers with different linguistic characteristics in the effectiveness of educational process and students’ academic achievements. Thus, it is noteworthy that the first block of questions incorporated in the SRQ demonstrated almost the same gradual paradigm from being assertive to being neutral, and finally to being negative (Figure 4; Figure 5):

1. Was the teacher articulate and coherent in representing new materials?
2. Did the teacher’s assignments appropriately meet challenging students’ expectations?
3. Was the teacher good at selecting and adapting resources in a learning process?
4. Did the teacher manage to master lesson content in accordance with students’ expectations?

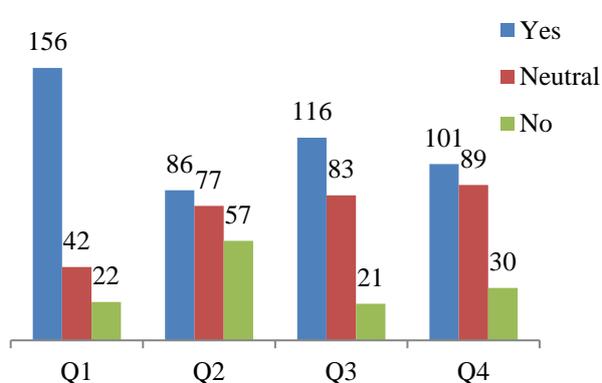


Figure 4. First session SRQ Results (Block 1).

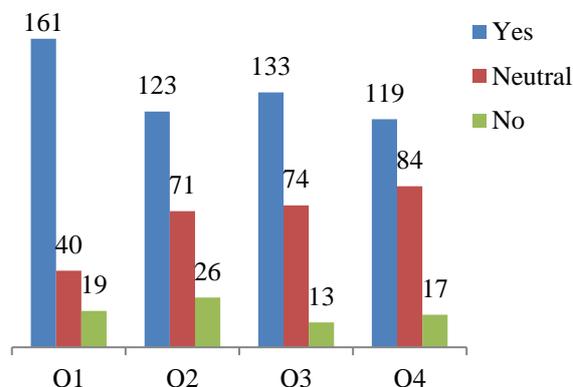


Figure 5. Second session SRQ Results (Block 1).

The response dispersion is not of a great significance, which causes to assume that the students have approximately the same perception of common teachers’ competencies independently from them being artificial bilinguals, or natural bilinguals but artificial multilinguals, or natural multilinguals.

Still there is a marked turnaround related to the second block of questions (Figure 6; Figure 7):

1. Was the teacher able to take advantage of cultural and personal experiences and resources?
2. Was the teacher proficient in “bridging languages” while making implications in case of being asked to exemplify some phenomena in different languages?
3. Did the teacher manage to demonstrate divergent and creative thinking via sensitively cultured techniques and methods?
4. Did the teacher run classes in the conditions of cross-cultural communication environment effectively?

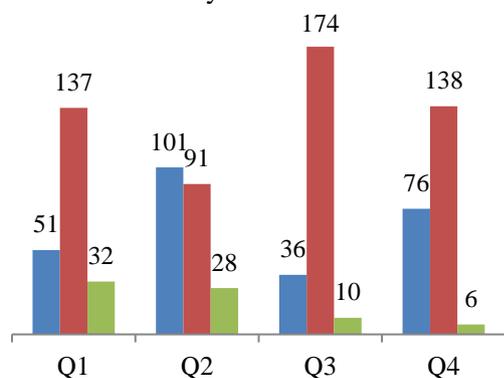


Figure 6. First session SRQ Results (Block 2).

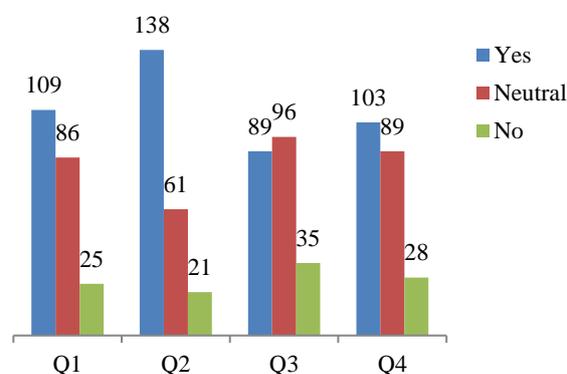


Figure 7. Second session SRQ Results (Block 2).

The first session of the research participants based on the second block of questions showed an excessively high rate of “neutral” answers (“I actually do not quite catch it”, “It is hard to assess it for sure”). After being requested to clarify these indicators the students expressed a statement that may generally denote their vague and blurry perception of cultural and linguistic characteristics of artificial bilingual teachers due to a specific type of interaction. This type of interaction can be identified as initiate-respond-evaluate (I-R-E) chain that used to be a patterned sample for teacher-student’s cooperation. Hence, that scheme of interaction deprived the students a chance to assess teachers’ background cultural and linguistic characteristics.

Conversely, the second session SRQ results demonstrated far more distinct and improved indicators of teacher’s background cultural and linguistic characteristics. All the indicators (except for Q3 criteria) are in degressive gradation from being assertive to being neutral, and to being negative which undoubtedly signal about distinguishing evident differences between artificial bilingual and natural bilingual or multilingual teachers in ways of interaction, materials representation, and influence on students’ motivation to actively participate in educational activities. The results of the second session also show higher degree of students’ engagement in the learning process which consequently increases their attention and focus on the subject and motivates to apply higher-level critical thinking.

To recheck the findings the FAT (Free Association Test) was brought into use. The results illustrate the ratio of the concept “teacher” elements received through the FAT (Figure 8; Figure 9). According to the derived data after the first session there were obtained most common associations: - *notions*: knowledge, education, language, facts, understanding, information, explanation, analysis (32 % of the total amount of the associations); - *conceptions*: book, classroom, master, perfect, practice, exercise, results, feedback, basis (52 %); - *estimations and emotions*: informative, supportive, motivating, correcting, disciplined, responsive (25 %).

After the second session the results distributed as is: - *notions*: ability, knowledge, culture, flexibility, education, facts, understanding, information, explanation, analysis (32 %); - *conceptions*: think, discuss, realize, adaptability, exercise, results, behaviour, feedback, strategy (52 %); - *emotions and estimations*: science, develop, informative, responsive, interactive, motivating, inspiring (25 %).

Analysis of the results witnesses alterations of the concept structure among the research participants: while the first representation shows predominance of associations that were initially generalized as direct ones (language proficiency, literacy, grammar, personality, rules), the second representation demonstrates a shift to indirect ones (metalinguistic abilities, metalinguistic awareness, cross-cultural flexibility, cross-cultural communication, cultural adaption).

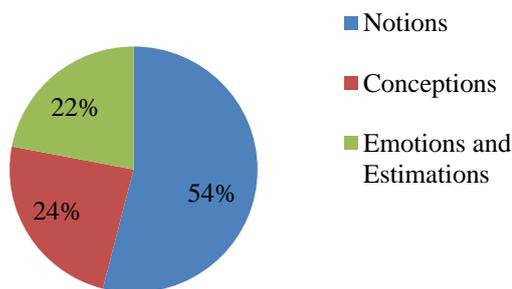
**"Teacher" concept structure  
(First session)**

Figure 8. "Teacher" concept structure (1).

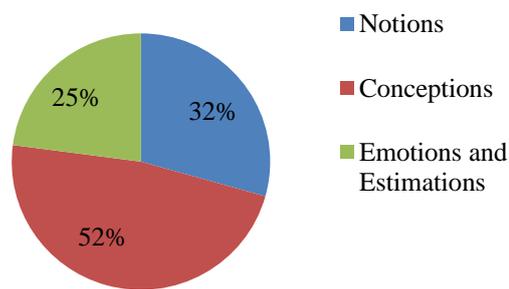
**"Teacher" concept structure  
(Second session)**

Figure 9. "Teacher" concept structure (2).

The validated change of vector is stipulated by such critical factors as higher degree of students' involvement into the learning process, closer interaction "student-teacher-class" and adaptation/tolerance towards multicultural environment. Obvious benefits of this scenario would be cultural consciousness strengthening, amplification of intercultural awareness, multiple historical perspectives, encouraged critical thinking, prevented stereotypes and prejudicial behaviour.

## Conclusion

Russian modern educational domain has been developing divergently linguistically and culturally due to be a multinational country with a major share of bilinguals and multilinguals. This fact led to considering teaching foreign languages process multifacetedly as applied to natural and artificial bilingual and multilingual teaching staff. The research was conducted to prove that natural bilingual or multilingual teachers possessing "switchover" abilities, being cross-culturally flexible and adaptive to diverse educational environment are far more effective and influential than artificial bilingual and multilingual ones.

The research indicated that the hypotheses were fully confirmed. Registered findings demonstrate students' awareness and willingness to be more engaged into the educational process in the format of joint research and learning activities with natural bilingual or multilingual teachers than in those conducted by artificial bilingual or multilingual ones.

Many participants really confirmed a change in concept structures towards indirect ones after the second session (with natural bilingual or multilingual teachers) noting development of metalinguistic abilities, strengthening of metalinguistic awareness, enhancement of cross-cultural flexibility, amplification of cross-cultural communication and tolerance.

Moreover, the participants showed a clear motivation to be involved into the educational process with natural bilingual and multilingual teacher who are able to apply various culture-centered sensitive teaching techniques and strategies thus ensuring adequate insight into students' perception, values, beliefs, and social interactions in multicultural classes. The demonstrated metalinguistic and cultural awareness of such educators which is evidently a result of being natural bilinguals or multilinguals assures their efficiency and uniqueness in a classroom and academic environment.

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## Management of a Study Programme in the Context of Quality Assurance in Higher Education

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**Abstract:** Quality assurance has become an issue of importance in higher education, and its significance is determined by many factors. A variety of quality assurance initiatives are launched at different levels of a modern university including the programme level. Quality assurance procedures are implemented in the framework of the comprehensive management of study programmes; they include various organizational activities associated with the programme development and improvement. Quality assurance initiatives are all aimed at enhancing as the overall academic quality of the study programme, as the programme-related service areas. It is especially important in the context of the international accreditation, which confirms that the study programme is compliant with European quality standards. The aim of the study presented in the paper was to identify to what extent various assessment criteria, which might be used in the context of evaluation of a study programme in the course of its development and improvement, are essential from the point of view of programme directors and students of the corresponding programmes. The paper is based on 1) the analysis of theoretical literature on quality assurance and official EU documents on quality assurance in higher education; 2) a survey conducted in two higher education institutions of Latvia – Riga Technical University (RTU) and Transport and Telecommunication Institute (TSI). The results of the study performed in the paper suggest that programme directors have to evaluate and update their study programmes working in close cooperation with the university's stakeholders, taking into account the recommendations of its administration, academic staff, students, graduates and employers.

**Keywords:** university education, quality assurance initiatives, study programme.

### Introduction

In terms of the modernisation agenda of the “Europe 2020” strategy, three priorities have been identified: smart, sustainable and inclusive growth; they are all intended on stimulating economic growth, competitiveness, innovation and social cohesion (Europe 2020..., 2010). The implementation of Europe's 2020 strategy necessitates improved quality and performance on the part of modern universities.

Since the late 1990s the pace of change in European higher education has accelerated, mainly on the basis of two strategic developments aimed at reforming the “fragmented” higher education, research and innovation systems into a more powerful and integrated knowledge-based economy (Benneworth et al., 2012; Bologna Declaration..., 1999).

Policy goals for the “Europe 2020” strategy include, among others, improving the quality and relevance of higher education, which in turn, involves adjusting quality assurance and funding instruments for accomplishing success in equipping students for the labour market (Europe 2020..., 2010). Ensuring quality higher education is vital in the framework of creating the European Higher Education Area – EHEA (Bologna Declaration..., 1999; Berlin Communiqué..., 2003; The Role of the Universities..., 2003; Standards and Guidelines..., 2005; Standards and Guidelines..., 2009; London Communiqué..., 2007, The European Higher..., 2012, Report to the European Commission..., 2013; Standards and Guidelines..., 2015).

Modern universities are now under great public pressure to establish their educational quality and to implement quality mechanisms (Cheng, 2016). Quality assurance has become an increasingly central topic in higher education; its importance is determined by many factors: the growth of student populations; understanding that higher education is vital for the success of the EU economy; understanding that higher education has become an international and competitive market area (Bringing out the best..., 2009). Various quality assurance initiatives are developed at different levels of a university; at the programme level, these initiatives are aimed at assessing and enhancing the design, content and delivery of the study programmes (Henard, Roseveare, 2012).

*The aim of the study* presented in the paper was to identify to what extent various assessment criteria, which might be used in the context of evaluation of a study programme in the course of its development

and improvement, are essential from the point of view of programme directors and students of the corresponding programmes. The paper is based on the analysis of theoretical literature on quality assurance and official EU documents on quality assurance in higher education, and a survey conducted in two higher education institutions of Latvia.

## Methodology

The paper is based on 1) the analysis of theoretical literature on quality assurance and official EU documents on higher education; 2) a survey conducted in two higher education institutions of Latvia – Riga Technical University (RTU) and Transport and Telecommunication Institute (TSI). The research population involves 203 students and 19 programme directors; the programmes include IT/Telecommunications, Transport and Logistics, Economics and Management, and Engineering. An original questionnaire was developed by the authors. A list of assessment criteria (aspects) was developed on the basis of European documents on quality assurance in higher education.

Eventually, the following assessment criteria (aspects) were chosen for empirical analysis: C1 – “The study programme corresponds to EU standards and requirements set for the university degree”; C2 – “The study programme ensures the development of students’ personalities”; C3 – “The study programme is based on internationally recognised research”; C4 – “The study programme has appropriate technological and financial support to correspond to the requirements that a modern university must meet”; C5 – “The study programme is aimed at developing students’ intercultural competence to help them succeed in a multicultural environment of the modern labour market”; C6 – “Administrative staff and management work continuously in close cooperation to monitor and improve the study programme in terms of academic content and learning environment”; C7 – “The study programme ensures a positive learning atmosphere based on cooperation and well-organized communication”; C8 – “Relevant academic content and appropriate planning of the study programme is ensured”; C9 – “The study programme is developed in collaboration with employers”; C10 – “The study programme is regularly evaluated and updated; the results of internal evaluation are compared with the results of the external dialogue with graduates and employers”; C11 – “Academic staff is involved in the process of the programme development and enhancement on a regular basis”; C12 – “Students are involved in the process of the programme development and enhancement on a regular basis”.

Students of the above programmes and programme directors were asked to rate the above items on a five-point Likert scale, as follows: 1 – not important, 2 – somewhat important, 3 – sufficiently important, 4 – rather important, 5 – highly important. The obtained data were processed using SPSS software package.

## Results and Discussion

### *Analysis of theoretical literature and official EU documents on quality assurance in higher education*

Today, the majority of universities declare in their strategic plans that “commitment to quality, quality assurance and improvement” is vital for accomplishing success in the modern education market (Hamalainen, 2003).

In Europe, the creation of quality assurance structures was stimulated by the Bologna Process aimed at matching higher educational structures within the European Higher Education Area; so, the Bologna Process pursues to guarantee comparability of standards and quality in European higher education (Ganseuer, Pistor, 2017). According to Bollaert (2014), “one of the most successful action lines of the Bologna Process has been in quality assurance”, a full-bodied quality assurance being necessary for improving European higher education and building international trust in its quality as inside the European Higher Education Area as beyond it.

The term “quality assurance” is utilized to refer to all activities within the continuous improvement cycle – that is assurance and enhancement activities (Standards and Guidelines..., 2015). Quality assurance presumes the establishment of specific organizational bodies, standards, models and assessment procedures (Todorescua, Greculescub, Lampac, 2014). The development of quality assurance in EHEA has been stimulated by the adoption of the *Standards and Guidelines for Quality Assurance in the European Higher Education Area* (Standards and Guidelines..., 2005; 2009; 2015), and their succeeding implementation (Hopbach, 2014).

*The Standards and Guidelines for Quality Assurance in the EHEA* provide the general logical framework establishing the standards for effective and reliable national higher education quality assurance systems (De la Rosa-Gonzalez, 2008). The four principles of quality assurance in European higher education formulated in the *Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG)* (Standards and Guidelines..., 2015) are as follows:

- higher education institutions have main responsibility for the quality of their provision and its assurance;
- quality assurance is related to the variety of higher education systems, institutions and programmes;
- quality assurance is related to the variety of student populations;
- quality assurance presupposes the development of a quality culture;
- quality assurance considers the needs and expectations of students;
- quality assurance considers the needs and expectations of other stakeholders and society.

As education includes many interrelating dimensions of quality in many different contexts (Gibbs, 2010), quality in this area is regarded a multidimensional concept, and quality evaluation must take into account the complexity of the educational process (Cheng, 2016). The standards for quality assurance in a modern university include a) internal quality assurance of a higher education institution; b) external quality assurance; c) quality assurance of external quality assurance agencies (Standards and Guidelines..., 2009). They are all interconnected, together forming the basis for a European quality assurance framework (Standards and Guidelines..., 2015).

According to C. Ganseuer and P. Pistor (2017), internal quality assurance refers to the “procedures, instruments and measures” a university uses autonomously for meeting some external standards (criteria) and accomplishing its own development goals in its “various fields of activity”. The internal standards may embrace different areas: approval, monitoring and regular review of programmes and awards, evaluation of students, quality assurance of teaching staff, learning resources and student support, information systems, and public information (Standards and Guidelines..., 2015). For each area, strategic objectives must be formulated in the agenda of supporting the goals set in the frame of an overall university’s strategy.

Support for quality teaching in a modern university is provided at different inter-dependent levels (Henard, Roseveare, 2012): 1) at the institutional level, institutional quality assurance policy is designed, and support to the organisational quality assurance system is ensured; 2) at the programme level, actions to measure and improve the design, content and delivery of the study programmes are developed and taken; 3) at the individual level, initiatives assisting teachers to achieve their mission, are planned.

Therefore, quality assurance policy in a contemporary university covers different organizational activities, development and improvement of study programmes being in the focus of the higher education institutions’ teaching mission (Standards and Guidelines..., 2015). Supporting quality teaching at the programme level is key for ensuring improvement in quality teaching across the higher education institution (Henard, Roseveare, 2012).

The quality management procedures of the programme should comply with the quality policy of the higher education institution (Ropponen, 2015). Quality assurance procedures are implemented in the framework of the comprehensive management of study programmes. Study programme director oversees a study programme, representing an “interface” between stakeholders of the programme and the university administration, in the process managing pedagogical, operational, financial and administrative issues (Roskosa, Stukalina, 2017).

In Table 1, the authors have summarized some basic standards and guidelines for internal quality assurance in the context of managing a study programme in a modern university.

The *Standards* also presuppose that students and other stakeholders must be involved in the development and improvement of a study programme (Standards and Guidelines..., 2015). Stakeholders are internal (students, academic staff and attending staff, administrating staff) and external (employers, sponsors, suppliers, government agencies, professional associations and interest groups). Engaging students in quality assurance activities is now gaining importance in the context of improving quality standards in

higher education (Elassy, 2013). In the EU, student participation in quality assurance has largely progressed since 2007 (Rauhvargers, Deane, Pauwels, 2009).

Table 1

**Standards and guidelines for internal quality assurance  
in the context of managing a study programme**

Standard description	Guidelines
1. Universities should establish processes for the design and approval of their programmes	<ul style="list-style-type: none"> <li>- Programmes are subject to a formal institutional approval process in the agenda of the institutional strategy</li> <li>- External expertise is involved in the process of designing and approving programmes</li> </ul>
2. The programmes should be designed so that they meet specific objectives, and include the related learning outcomes	<ul style="list-style-type: none"> <li>- Overall programme objectives are consistent with the institutional strategy</li> <li>- Programmes provide students with both academic knowledge and a variety of skills, which may influence students' personal development and enable smooth student progression in the course of learning</li> </ul>
3. The awarded qualification should be clearly identified in conformity with the level of the national qualifications framework for higher education/the Framework for Qualifications of the European Higher Education Area (EHEA)	<p>Programmes reflect the four purposes of higher education stated by the Council of Europe:</p> <ul style="list-style-type: none"> <li>- setting a common framework for quality assurance systems for learning and teaching at European, national and institutional level;</li> <li>- enabling the assurance and improvement of quality of higher education in the European Higher Education Area;</li> <li>- facilitating recognition and mobility within and across national borders in the agenda of life-long learning and internationalization of higher education;</li> <li>- providing information on quality assurance in the European Higher Education Area</li> </ul>

Source: (Standards and Guidelines..., 2015)

The programme assessment procedures include regular evaluation of the educational activities integrated in the programme, as well as the programme-related service areas. It is especially important in the context of the study programme international accreditation, which confirms that the programme is compliant with European quality standards. Universities may apply the accreditation standards as a tool in the assessment and development of their programmes, the quality management procedures of the programme being consistent with the quality policy of the university (Ropponen, 2015).

In this regard, one of the ways of defining quality is to select key quality indicators – that is the criteria, standards and aims of evaluations, which indicate what is considered as essential in teaching and learning, and which also focus on the areas having the biggest importance for the development of the study programme (Hamalainen, 2003).

The obtained information would be utilized by the university administration in various contexts (Roskosa, Stukalina, 2017): to launch activities in the department; to address some urgent issues; to monitor, modify and enhance the study programme; to provide students with necessary information on their programme and their academic progress; to provide other stakeholders with necessary information on the programme; to provide well-timed assistance to the students and academic staff engaged in the implementation of the programme; to build efficient communication channels across the higher education institution needed for the efficient management of the study programme.

**Analysis of the empirical study results**

The study findings are presented in Table 2, Table 3, Figure 1 and Figure 2. The analysis of the obtained results is provided hereinafter.

Table 2

**Summary statistics: means, standard deviations and medians (students).**

Transport and Logistics			Engineering			IT and Telecommunications			Management and Economics			Total		
Mean	St.deviation	Median	Mean	St.deviation	Median	Mean	St.deviation	Median	Mean	St.deviation	Median	Mean	St.deviation	Median
4,57	0,63	5,00	3,85	1,23	4,00	4,27	0,87	4,00	4,30	0,82	4,00	4,25	0,92	4,00
3,68	0,82	4,00	3,62	0,82	4,00	3,79	1,06	4,00	4,22	0,70	4,00	3,80	0,96	4,00
4,11	0,74	4,00	3,47	1,13	3,50	3,98	0,89	4,00	4,07	0,73	4,00	3,93	0,92	4,00
4,50	0,75	5,00	3,62	0,92	4,00	4,22	0,90	4,00	4,41	0,80	5,00	4,18	0,91	4,00
4,04	1,00	4,00	3,21	0,98	3,00	3,89	1,04	4,00	4,00	1,14	4,00	3,81	1,07	4,00
4,11	0,88	4,00	3,50	0,79	4,00	3,87	0,91	4,00	4,04	0,76	4,00	3,86	0,88	4,00
4,18	0,82	4,00	4,21	1,04	5,00	3,96	0,93	4,00	4,11	0,85	4,00	4,05	0,93	4,00
4,32	0,86	5,00	3,65	0,73	4,00	3,96	0,85	4,00	4,15	0,72	4,00	3,98	0,83	4,00
4,50	0,75	5,00	3,85	0,86	4,00	4,01	0,98	4,00	3,81	0,92	4,00	4,02	0,94	4,00
4,07	1,12	4,00	3,94	1,10	4,00	3,99	0,93	4,00	4,07	0,83	4,00	4,00	0,97	4,00
3,86	0,76	4,00	3,74	0,93	4,00	3,75	0,88	4,00	3,56	0,89	3,00	3,74	0,87	4,00
3,68	0,90	4,00	3,29	0,94	3,00	3,73	1,13	4,00	3,63	0,74	4,00	3,64	1,03	4,00

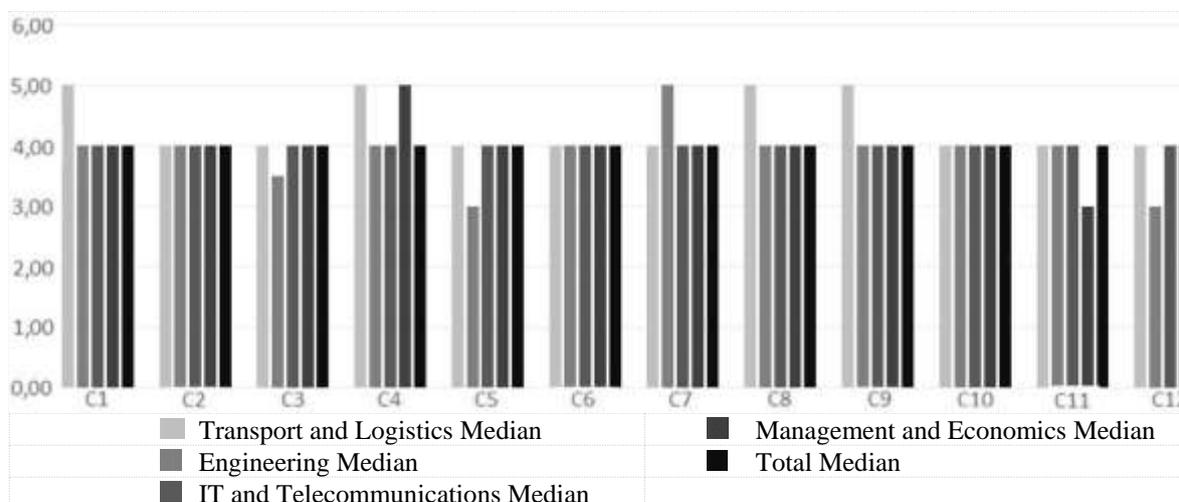


Figure 1. Importance of the programme assessment criteria as perceived by students of the corresponding programmes.

One of the aspects researched in the survey was the correspondence of the study programme to EU standards and requirements set for the university degree (C1). The programme directors of IT/Telecommunications and Economics and Management evaluated this aspect as very important – 5.0 points. This aspect was also quite significant for Transport and Logistics and Engineering programme directors – 4.5 and 4.0 points. The students of the above-mentioned programmes also consider this aspect to be very important. The students of Transports and Logistics evaluated it with 5.0 points; the other students assessed it with 4.0 points. The data show that total evaluation is also very high – the programme directors – 5.0 points, and the students – 4.0 points respectively.

Table 3

**Summary statistics: means, standard deviations and medians (programme directors).**

Transport and Logistics			Engineering			IT and Telecommunications			Economics and Management			Total		
Mean	St.deviation	Median	Mean	St.deviation	Median	Mean	St.deviation	Median	Mean	St.deviation	Median	Mean	St.deviation	Median
4,25	0,96	4,50	4,43	0,53	4,00	5,00	0,00	5,00	5,00	0,00	5,00	4,63	0,60	5,00
3,25	1,26	3,00	5,00	0,00	5,00	3,40	0,55	3,00	4,67	0,58	5,00	4,16	1,01	5,00
3,50	1,00	3,00	4,29	0,49	4,00	3,40	1,14	3,00	3,00	0,00	3,00	3,68	0,89	4,00
4,25	0,96	4,50	4,57	0,53	5,00	5,00	0,00	5,00	4,33	0,58	4,00	4,58	0,61	5,00
3,75	0,50	4,00	4,57	0,53	5,00	3,20	1,30	3,00	4,00	0,00	4,00	3,95	0,91	4,00
2,50	1,29	2,50	4,86	0,38	5,00	3,40	1,82	4,00	4,33	1,15	5,00	3,89	1,45	5,00
4,25	0,96	4,50	5,00	0,00	5,00	3,80	0,84	4,00	4,33	0,58	4,00	4,42	0,77	5,00
4,00	0,82	4,00	4,43	0,53	4,00	4,20	0,45	4,00	4,00	0,00	4,00	4,21	0,54	4,00
2,75	1,50	3,00	3,29	0,95	4,00	4,40	0,55	4,00	4,00	1,00	4,00	3,58	1,12	4,00
3,00	1,83	3,00	4,14	0,38	4,00	4,20	1,10	5,00	5,00	0,00	5,00	4,05	1,13	4,00
4,25	0,96	4,50	4,57	0,53	5,00	4,20	0,45	4,00	4,00	0,00	4,00	4,32	0,58	4,00
3,25	0,96	3,50	3,43	1,27	3,00	3,20	0,84	3,00	3,00	1,00	3,00	3,26	0,99	3,00

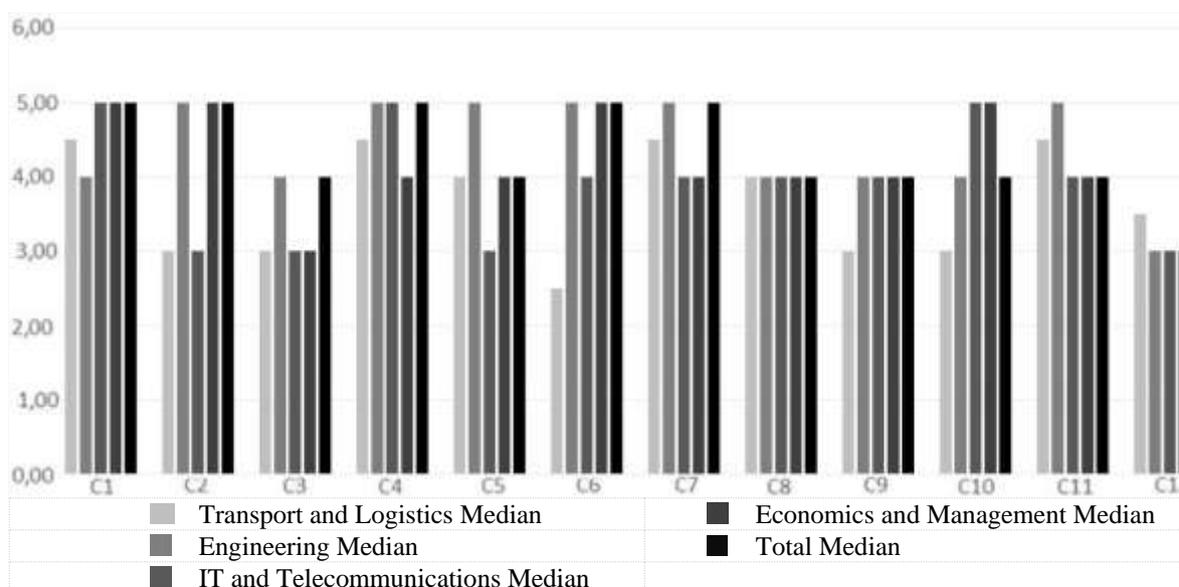


Figure 2. Importance of the programme assessment criteria as perceived by directors of the corresponding programmes.

The survey has also identified the respondents' point of view on the other substantial aspect of quality assurance in higher education – ensuring the development of students' personalities (C2). The results show that for the directors of Engineering and Economics and Management programmes, it is extremely important – 5.0 points. Whereas, the directors of Transport and Logistics and IT/Telecommunications programmes consider this aspect to be less significant – 3.0 points respectively. The students of the above-mentioned programmes similarly evaluated this aspect – 4.0 points. The total evaluation is also high – the programme directors' assessment is 5.0 points, and the students' evaluation is 4.0 points correspondingly.

The programme directors and students also expressed their point of view on the following issue – if it was important for the study programme to be based on internationally recognized research (C3). The data show that this aspect of the study programme was evaluated lower. The directors of Engineering programmes were of the point of view that it was rather essential – 4.0 points, whereas, the directors of Transport and Logistics, IT/Telecommunications, and Economics and Management programmes

assessed it with 3.0 points – as less significant. The students evaluated this aspect a little bit higher than programme directors. The students of Engineering assessed it with 3.5 points, whereas, the students of other programmes evaluated this aspect with 4.0 points. The total evaluation of both the programme directors and the students was the same – 4.0 points.

Another aspect related to the study programme quality assurance included the information if it was necessary for the study programme to have appropriate technological and financial support to correspond to the requirements that a modern university had to meet (C4). This aspect was assessed as the most essential for the directors of Engineering and IT and Telecommunications programme – 5.0 points. Other specialty programme directors also evaluated it highly – Transport and Logistics – 4.5 points and Economics and Management – 4.0 points respectively. The students evaluated this aspect as one of the most important among all researched aspects. The students of Transport and Logistics and Economics and Management assessed it with 5.0 points, whereas, the students of Engineering and IT and Telecommunications evaluated it with 4.0 points. The total evaluation for the programme directors was 5.0 points, and for the students it was 4.0 points correspondingly.

The study also researched questions dealing with globalization and multicultural environment of the present-day labour market identifying respondents' opinion on the following aspect – if it was important for the study programme to be aimed at developing students' intercultural competence to help them succeed in a multicultural environment of the modern labour market (C5). The answers of the programme directors were different. This aspect was highly appreciated by Engineering study programme directors – 5.0 points. The programme directors of Transport and Logistics and Economics and Management also assessed it quite highly – 4.0 points. Whereas, for the programme directors of IT and Telecommunications it was not so important – 3.00 points. The students of Engineering evaluated this aspect with 3.50 points, whereas, the students of other programmes evaluated it higher – 4.0 points. The total evaluation for both the programme directors and the students was the same – 4.0 points. It was interesting that there was a gap in evaluation for the programme directors and students of the same specialty – Engineering – 5.0 points for the programme directors, and 3.0 points for the students respectively.

The research focused on the importance of cooperation among the study process participants as well. Respondents were asked to evaluate if it was significant for the administrative staff and management to work continuously in close collaboration to monitor and improve the study programme in terms of academic content and learning environment (C6). The point of view of programme directors was different. Engineering and Economics and Management study programme directors highly evaluated the importance of cooperation – 5.0 points. The IT and Telecommunications programme directors also consider the role of cooperation as important – 4.0 points. Whereas, for Transport and Logistics programme directors this aspect was of a much lower importance – 2.5 points. The students of above mentioned programmes have the same point of view evaluating this aspect – 4.0 points. The total evaluation for both the programme directors and the students was high – 5.0 points and 4.0 points correspondingly.

Learning atmosphere created in the process of the study programme implementation was another aspect researched by the authors. Respondents expressed their opinion on the following issue – if the study programme had to ensure a positive learning atmosphere based on cooperation and well-organized communication (C7). The data show that this aspect is of a high importance for the programme directors of Engineering – 5.0 points, and also Transport and Logistics – 4.5 points. The programme directors of IT/Telecommunications and Economics and Management also consider this aspect as important – 4.00 points. The data show that this aspect is also highly evaluated by the students. The students of Engineering assessed it with 5.0 points – in the same way as the programme directors of this specialty. Other students also consider this aspect as significant – 4.0 points. The total evaluation is high as well the programme directors – 5.0 points, and the students – 4.0 points respectively.

The next task in the survey was to identify if it was necessary to ensure a relevant academic content and an appropriate planning of the study programme (C8). All above mentioned study programme directors have the same point of view: it is necessary – 4.0 points. The students also think that it was of a vital importance to ensure a relevant academic content and an appropriate planning. The students of Transport and Logistics evaluated this aspect with 5.0 points, whereas, other students assessed it with 4.0 points. The total evaluation for both the programme directors and the students was high – 4.0 points.

The respondents were also asked to evaluate if it was significant to develop a study programme in collaboration with employers (C9). Most of programme directors agreed that it was important – 4.0 points. Only programme directors of Transport and Logistics had a lower evaluation – 3.0 points. The students also evaluated this aspect as important. The total evaluation for both the programme directors and for the students was the same – 4.0 points. Most of students assessed it with 4.0 points. But the students of Transport and Logistics evaluated it with 5.0 points. It is worth mentioning that the view of the students of Transport and Logistics differed from the programme directors of this specialty who assessed this aspect with 3.0 points.

The research also included the information related to the following issue – if it was of a high importance regularly evaluate and update the study programme, and to compare the results of internal evaluation with the results of the external dialogue with graduates and employers (C10). This aspect was very highly assessed by programme directors of IT and Telecommunications – 5.0 points, and also rather high by Engineering – 4.0 points. Whereas, the programme directors of Transport and Logistics consider it as less significant – 3.0 points. The students of the above-mentioned programmes have the same point of view; they evaluated this aspect with 4.0 points. The total assessment for both the programme directors and the students was the same – 4.0 points.

The respondents were also asked to give their opinion if it was important for the academic staff to be involved in the process of the programme development and enhancement on a regular basis (C11). The results show that this aspect was evaluated highly by all programme directors: Engineering – 5.0 points, Transport and Logistics – 4.5 points, IT/Telecommunications and Economics and Management – 4.0 points. The students of all the above-mentioned specialties consider this aspect as important assessing it with 4.0 points. The total evaluation for both the programme directors and the students was also done in consonance giving 4.0 points.

The last aspect researched by the authors was about the role of students in process of the programme development and improvement (C12). The data show an interesting tendency – the programme directors do not highly appreciate students' involvement. Most of above mentioned programme directors did not consider this aspect as important – 3.0 points. Only programme directors of Transport and Logistics had a little higher evaluation – 3.5 points. The students assessed this aspect highly. Most of them evaluated it with 4.0 points. Only the students of Engineering assessed it with 3.0 points. Accordingly, the total evaluation of the programme directors is 3.0 points, and the total assessment of the students is 4.0 points respectively.

## Conclusions

The analysis performed in the paper has allowed the authors to make the following conclusions.

- Modern EU universities cooperate and communicate on a large scale in the frame of strengthening the European Higher Education Area; thus, they have to comply with the same requirements and standards.
- As modern students' personalities are dynamic and keep developing, one of the tasks of contemporary universities is to help them succeed in this process. It is also worth mentioning that universities and the teaching staff also develop together with their students. It is inevitably a bilateral process.
- Contemporary universities are international and multicultural organizations, and their research activities have to be internationally recognizable.
- As modern students are advanced IT users, present-day universities keep with the development of modern technologies, which is closely related with providing substantial financial support. Increasing the number of foreign students may help invest their financial resources in the development of technologies.
- Programme directors are more knowledgeable and experienced to see the trends of modern labour market, which is becoming more multicultural. One of their main tasks is to prepare students to fit in such labour market and correspond to all its requirements.
- The specifics of duties and competence of programme directors involve cooperation and communication with administrative staff and management, which may face different challenges and problems. The cooperation and communication skills of all the study process participants have to be developed to succeed in solving the problems and finding the most appropriate solution.

- Cooperation and well-organized communication are the basis of a positive learning atmosphere. It is necessary for the administration and the academic staff of our modern – day universities to help students develop their communication and cooperation skills and be an example for students to take these skills after.
- Contemporary universities have to assure the quality of their study programmes, which is closely related with an appropriate planning and relevant academic content. It is of an essential importance for universities to succeed in the international competition in higher education.
- Programme directors are possibly more tended to help students grow academically and develop their theoretical competence, whereas, the students are more willing to increase their practical knowledge learning from employers. Nevertheless, both theoretical and practical knowledge is very significant to succeed in a present-day labour market.
- Programme directors have to evaluate and update their study programmes working in close cooperation with the university's stakeholders, taking into account the recommendations of its administration, academic staff, students, graduates and employers as all of them are interested in the result.
- It is important for programme directors to take into the consideration the point of view of the academic staff, because they closely work with students, know their opinion and may draw attention to pluses and minuses of a study programme helping to enhance it.
- Students' opinion is very important as students are the main target group of the study programme and the most interested party regarding educational outcomes, since they will determine graduates' competitiveness in the international labour market.

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## Research of the Relationship of Criminal Violence, Adult Attachment Styles and Personality Traits of Violent Male Offenders

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**Abstract:** The problem of assessing criminal attitudes towards violence of violent offenders is very essential. It is important to measure criminal attitude using valid procedures as Self-Concept Implicit Association Test (IAT) and also consider its relationship with additional variables as attachment styles and personality traits, that could help to explain the forming and maintaining criminal attitude towards violence. The aim of this study is to research the relationship of criminal violence, adult attachment styles and personality traits of violent male offenders. Six research questions were formed. Participants were violent male prisoners ( $N = 77$ ), aged 20-62 years ( $Mdn = 34$  or  $M = 35.5$ ,  $SD = 10.6$ ). Methods used: Specially designed Self-Concept IAT, measuring implicit criminal attitudes towards violence; Criminal Attitudes to Violence Scale (CAVs); the Eysenck Personality Questionnaire Revised - Abbreviated (EPQR-A) and Vulnerable Attachment Style Questionnaire (VASQ). The main results showed that anxious-ambivalent attachment style is more common for violent prisoners. It was found that the greatest impact on implicitly measured attitudes towards criminal violence is made by insecurity then, explicit attitudes towards violence and then by neuroticism. The factor analyses indicated three factors. The results can be used in the process of re-socialization of violent prisoners.

**Keywords:** attitudes towards violence, attachment styles, personality traits, implicit measures, criminal offenders, psychology.

### Introduction

The concept of criminal attitudes has not been widely researched and there are not many valid instruments for its measurement. In the context of the paper, attention is paid to Self-Concept IAT development and its relationship to self-concept procedures. To understand the essence of attitudes towards violence, it is important to consider it through concepts as attachment styles and personality traits.

#### The attachment theory

The attachment theory was originally developed by J. Bowlby (1984), who defined that attachment, formed in childhood, is underlined by an affectionate bond, a special linkage with the attachment figure, usually a primary caregiver (e.g., mother) (Bowlby, 1988). He developed the attachment theory combining the theories of emotional and cognitive development (Karen, 1994), mainly explaining attachment behaviour as a behaviour that is biologically rooted and is a part of human nature and it is activated when the child is not feeling well or is experiencing any other distressing emotion (fear, anxiety), resulting in proximity seeking (Bowlby, 1988).

Attachment theory was also influenced by ethological theory, which explains the evolution of attachment behaviour that starts at birth, continues for the rest of the person's life. The process is divided in to four phases and each phase has its own input in the development of attachment (Ainsworth et al., 1978). The final two stages (clear cut attachment and goal-corrected partnership) are the most important, because the child starts to demonstrate specific attachment behaviours like separation anxiety (Eisen, Schaefer, 2005). At the same time secure base effect is formed, when the child uses the mother as a base from which to explore the surroundings and always return to, if needed (Bowlby, 1988).

M.D.S Ainsworth expanded J. Bowlby's theory, mainly through her well known experimental tool 'The Strange situation' in 1978, and came to a conclusion that not only biological, but also factors like cultural (the influence of the society and its norms) and individual differences, influences attachment relations (Parkes, Stevenson-Hinde, Marris, 2004). She integrated the results of the experiment in to three attachment styles (secure, anxious-ambivalent and avoidant) (Ainsworth et al., 1978).

The attachment formation can result in to secure or insecure attachment. The security of attachment style is highly dependent on the actions of the attachment figure. To form a secure attachment, the primary caregiver needs to be accessible even if not present, emotionally available and willing to

respond (Bowlby, 1988). The insecurity of attachment is formed, in situations, when the caregiver fails to provide proximity or practises too demanding parenting style (Bukatko, Daehler, 2012).

Since the beginning, attachment theory had a lifespan approach to human development. Childhood attachment is exchanged in adulthood when the primary attachment figures, parents, are replaced by a different one – a partner (Parkes, Stevenson-Hinde, Marris, 2004). Adult attachment has been defined as: “stable tendency of an individual to seek and maintain proximity to and contact with one or a few specific individuals who provide the subjective potential for physical or/and psychological safety and security” (Berman, Sperling, 1994, 8).

Adult attachment is bi-directional, both partners are the support givers and receivers (Shemmings, 2005). For adults to gain proximity, it is enough to know that their attachment figure is reachable and willing to respond (Hazan, Shaver, 1994). There are important differences between securely, avoidant and anxiously - ambivalently attached adults and the way they solve problems and behave in their romantic relationships (Tucker, Anders, 1998). *Securely* attached individuals are comfortable with intimacy, trust and have good communication levels. They are supportive and friendly. *Avoidant* individuals have difficulties with depending on and trusting other people (Feeney, Noller, 1996). Avoidantly attached adults tend to maintain their independence and also have a tendency to stay emotionally distant from their partner, although they also tend to be jealous. *Anxious- ambivalent* individuals have extreme need for love and closeness, fearing that the partner would not support and abandon them when it is needed. They also experience jealousy (Shaver, Balsky, Brennan, 2000).

Based on the previously mentioned theoretical models, K. Bartholomew developed and explained four attachment styles that are formulated according to the way (positive or negative) a person sees himself and others. Pairing the positive (high) and negative (low) models of self and others, Secure, Preoccupied (extremely dependent), Dismissing (denying) and Fearful (avoidant) attachment styles were defined (Bartholomew, Horowitz, 1991). The current study is based on three adult attachment styles, adjusted by C. Hazan and P.R. Shaver (1994).

#### The link of attachment styles and criminal violence

Violence is defined as the most severe type of physical or nonphysical aggression that is likely to cause serious physical or psychological harm (APA Dictionary of Psychology, 2015). Criminal violence is a violent act (usually involving physical violence - the use of physical force, often causing serious injury) that is against the law. Without the law, any kind of most immoral violent action cannot be considered “criminal violence” (Riedel, Welsh, 2011).

According to J. Bowlby, criminal violence is a disorder of the attachment system (Bowlby, 1984). Violence initially could be divided in to affectionate – reaction to a threat (evolutionary basis – self-protection) and predatory – planned, purposeful and emotionless (evolutionary basis- hunting for food) (Meloy, 1988). More recently researchers have contributed to the theory defining affectionate violence as reaction to anger or fear and the basic characteristics are emotional, reactive, impulsive and expressive (Bushman, Anderson, 2001). Predatory violence is regarded as absence of emotion and threat and is deliberately planned. It is characterized as instrumental and cold-blooded (Woodworth, Porter, 2002).

Proximity seeking has been stated as a link to both types of violent behaviour and attachment system. In predatory violence the offender seeks the victim and the drive of such proximity seeking is destructive. In case of affectionate violence, proximity causes intense defensive reaction that results in to violence (Fonagy et al., 1997).

Analysis of the researches showed that there is a relationship of attachment styles and criminal violence (Fonagy et al., 1997) as well as other types of violence, for example, intimate partner violence (Higginbotham et al., 2007). The study examined relationship of attachment styles, intimate partner violence and religiosity. The results showed that insecurely attached individuals experienced more violence in their romantic relationships and was likely to be a victim. Securely attached individuals were more satisfied with their relationships and were engaged in more stable and longer-lasting relationships that adapted peaceful and productive conflict resolution (Higginbotham et al., 2007). The results of another study showed that attachment anxiety and dependency, referring to anxious/ambivalent attachment style, provides the link between intimate partner relationship and Post Traumatic Stress Disorder (PTSD) (Scott, Babcock, 2009). It can be concluded that securely attached individuals are not

prone to predatory violence, they can resolve conflicts in a healthy non-violent manner and also will not suffer from PTSD after violent episodes.

#### The link of personality and criminal violence

Researchers have been trying to link personality traits to criminality for a long time (Akers, Sellers, 2012). It has been researched that certain personality traits are connected to antisocial behavior (Miller, Lynam, 2001). These models are: Five factor model (FFM) (McCrae, Costa, 1990), PEN (Psychoticism, Extraversion, neuroticism) model (Eysenck, 1977), Tellegen's three-factor model (Tellegen, 1985), C.R. Cloninger's temperament and character model (Cloninger, Svrakic, Przybeck, 1993).

The current research is based on the PEN model by H.J. Eysenck. To his mind, the criminal should have to provide high scores in all three dimensions of personality. H.J. Eysenck's, on temperament based, theory reflects the influence of bio-social factors on the development of antisocial behaviour and is regarded to as three-factor personality model (Eysenck, 1977).

Individuals, who show high scores in Extraversion (E) scale are characterized as socially active, talkative, and driven by the search of adventures and new experiences. Low E scores indicate low level of arousal, thus more stimulation from the environment is needed. Individuals with high Neuroticism (N) scores suffer from more anxiety, they are more depressive, emotionally unstable and react more to unfavourable stimuli. If the N score is low, individuals have stable nervous system, that does not overreact on the stimuli of the environment. Individuals with high Psychoticism (P) scores are aggressive, antisocial and egocentric (Eysenck, 1977).

According to the H.J. Eysenck's personality trait theory the link to criminal behaviour has been developed in the process of socialization. He stated criminal behaviour as a delay in development, because criminal behaviour is stated as selfish, and instant gratification, opposite to socialization, because in process of socialization children learn to delay the gratification and be more orientated towards the interest of society not only selfish interests (Eysenck, 1977). Based on the theory of H.J. Eysenck, a hypothesis has been developed: high P, E and N scores indicates risk of antisocial behaviour.

It has not been yet properly stated exactly which dimension (P, E or N) is the most associated to criminal behaviour. For example, G.H. Gudjonsson, J.F. Sigurdsson, S. Young, A.K. Newton (Gudjonsson et al., 2009) discovered that mood swings, that is predicted by N (neuroticism) scale, influence violent behaviour more than antisocial personality traits, as evidenced by P (psychoticism) scale.

A research measured the influence of different risk factors on violent crime. The sample consisted of two groups - participants, who had a history of violent crime and participants, who didn't have any violent crime reported on them in the past. Each risk factor (personality, family, social support, coping style, impulsiveness and aggression) was assessed. Main findings of the research - groups with young people who have engaged in violent activities in the past scored significantly higher E and P rates than non-violent youth groups. With this type of personality (high Extraversion and Neuroticism), young people become nervous, suffer from anxiety and depression. This means that they are more responsive to environmental stimuli and it is more difficult for them to maintain peace. This difficulty can turn in to violent behaviour that leads to committing a crime (Qiu et al., 2014).

#### Implicit methods as a measurement of attitudes towards criminal violence

The main concept of attitude towards criminal violence (criminal violence) is yet to be concluded. Criminal attitudes have been hypothesised to be criminogenic thinking, distorted cognition, irrational beliefs and antisocial attitudes (Andrews, Bonta, Wormith, 2006).

Up to date only a couple of researches on criminal attitudes or attitudes towards violence using implicit measurement methods have been published and only some of them used violent criminal offenders as a sample (Snowden et al., 2004; Polaschek et al., 2010; Robertson, Murachver, 2007; Eckhardt et al., 2012).

All of the mentioned studies as well as our previous studies have been using Implicit Association Test (IAT) as the main instrument to measure criminal attitudes towards violence. IAT is a cognitive-behavioural paradigm (computerized response latency task) that measures the strength of automatic (implicit) associations between concepts (e.g., 'positive - negative' and 'violence-piece') relying on latency measures in a straightforward categorization task (Greenwald, McGhee, Schwartz, 1998). IAT

is being considered by many to be the most reliable and valid response latency-based measure that is currently available (De Houwer, De Bruycker, 2007).

There are many variations of the IAT procedure and mostly researchers, who have designed IAT measuring violence and aggression have been focused on classical 7 block IAT (Snowden et al., 2004; Polaschek et al., 2010; Simane-Vigante, Plotka, Blumenau, 2015; Eckhardt, Crane, 2014; Niazi, 2011). Many of them have suggested that for measuring as sensitive issue as attitude towards criminal violence Self-Concept IAT could provide more reliable results. Self-Concept IAT has been adapted to measuring implicit self-concept by observing reaction times for classification tasks in which the concept pair used in the IAT is Self-Other (Greenwald, Farnham, 2000).

The main novelty of the present research is that we do not only measure attitude towards violence as such. This time we add different variables (attachment styles and personality traits) and attempt to explain one of the factors, why the attitude towards violence is formulated and maintained.

The aim of this study is to research the relationship of criminal violence, adult attachment styles and personality traits of violent male offenders.

## Methodology

The six research questions are:

1. Which attachment style is more common for violent offenders?
2. Is there a relationship between vulnerability, insecurity, proximity seeking, violence (measured with implicit measurement methods and self-assessment procedures), personality traits and times of previous convictions?
3. Is there a relationship between attachment styles (secure, anxious, avoidant) and attitudes towards violence and personality traits?
4. What contribution to implicitly estimated attitude towards criminal violence is made by vulnerability and its scales (insecurity and proximity seeking), personality traits, previously sentenced times and the explicitly estimated attitude towards criminal violence?
5. What contribution to explicitly estimated attitude towards criminal violence is made by vulnerability and its scales (insecurity and proximity seeking), personality traits, previously sentenced times and the implicitly estimated attitude towards criminal violence?
6. What common factors underlie the relationship between the results of measurements of the implicit and explicit attitudes towards the violence, vulnerability attachment styles and the personality traits and previously sentenced times of violent criminal offenders?

## Participants

The participants were male prisoners ( $N = 77$ ), aged 20-62 years ( $Mdn = 34$  or  $M = 35.5$ ,  $SD = 10.6$ ), who have been convicted for violent crimes (homicide, murder, assault, manslaughter, sexual assault, rape, robbery) and are undergoing their sentence in a high security prison.

## Methods

### Explicit methods:

There were three explicit methods used, to measure each variable.

To measure criminal violence, a linguistically adapted Criminal Attitudes towards Violence Scale (CAVS) in Latvian and Russian (Polaschek, Collie, Walkey, 2004) was used. The internal consistency of CAVs was Cronbach's alpha = 0.89, indicating high internal consistency.

To indicate attachment styles, vulnerable attachment style and its measures- insecurity and proximity seeking, the primary linguistic adaptation of Vulnerable Attachment Style Questionnaire (VASQ) in Latvian and Russian (Bifulco et al., 2003) was used. The internal consistency of VASQ was Cronbach's alpha = 0.80, indicating high internal consistency.

To indicate personality traits (Psychoticism, Extraversion and Neuroticism) a linguistically adapted The Eysenck Personality Questionnaire Revised-Abbreviated (EPQR-A) in Latvian and Russian (Francis, Brown, Philipchalk, 1992) was used. The EPQR-A showed acceptable internal consistency (Cronbach's alpha = 0.70).

*Implicit Method:*

A new Violence Self-Concept Implicit Attitude Test (Self-Concept IAT) procedure was designed with the aim to measure implicit violent attitudes reflecting them on self and others. The procedure was created in Latvian and Russian languages.

The construction of the IAT: Categories “Self” (verbal stimuli) were picked according on the best known (easily understood) words describing the concept of “me” and “others” in both languages.

The pictorial (visual) stimuli were picked according to the most common actions of violence: stabbing, strangling, fighting (hitting), shooting, attacking, violence towards women (intimate partner violence). The visualisations of all but one of the acts are graphic, thus they are not traumatizing, and everyone can use their imagination to create their own view of the situation. Two pictures of weapons (some of the most popular when it comes to acts of violence) - a gun and a knife with blood were also included as the pictorial stimuli in the target categories.

Attributes “Piece” were picked according to actions that are peaceful and do not involve high adrenalin activities (as skiing, parachute jumping), competitive activities (like team sports or boxing) and women (like couple activities, because it could be associated with intimate partner violence).

Because of the uniqueness of the sample (violent criminal offenders), it is necessary to create some modifications to the standard self-concept IAT. As D.L.L. Polaschek with colleagues stated, it is necessary to shorten and simplify the methodology, because often high-risk criminal offenders face problems with head injury, cognitive functioning and learning (Polaschek et al., 2010). As a result, the trial periods were shortened as much as possible, to still maintain the validity of the procedure, but shorten the main duration of the procedure (Table 1).

*Apparatus:* Certified licensed software E-Prime 2®.

**Research Procedure**

The researchers wrote an application letter to the Latvian Ministry of Justice and the Latvian Prison Administration, where the research was reviewed and authorized. The research took place in Brasa Prison and Liepaja Prison. All the participants took part in the research voluntarily, they were assured that that the research has no connection with their sentence or the possibility of probation and the participation is anonymous. The research was conducted individually. Participants completed the tasks in the same order: Self-Concept IAT measure and explicit measures. The prisoner was asked to write down how many times has he been sentenced previously and what criminal codes has he been sentenced by. The researcher thanked the prisoner for participation and answered all the questions, if he had any. It took about two weeks to gather all the data. After analysing the data, the interested employees from the prisons and the Latvian Prison Administration were invited for a seminar, to introduce them with the gained results.

*Self-Concept IAT measure.* The authors designed the experimental procedure Self-Concept IAT, using seven trial blocks. Performance of the implicit method took an average of 10 to 20 minutes. Participant's reaction time (RT) was registered. Each stage was preceded by a set of instructions concerning the dimensions of the categorization task and the appropriate key responses. Instructions were written in black letters on a white background and located in the centre of the screen. Each sentence began with a new line. Each target word appeared centered on the screen. All target and category words were presented in lowercase letters. Before the start of the experiment, on a computer monitor a participant was given general instructions and specific instructions before each of the blocks (tasks). The task of the participants was the differentiation of presented stimuli. The violence Self-Concept-IAT combined verbal and visual stimulus (6 pictures with violence theme, covering different types of physical violence and 6 pictures with the piece theme, covering different types of peaceful actions preferred by men (e.g., fishing, boating, playing with children). Stimulus word displayed on the screen without auditory accompaniment and remained on the screen until the pressing a key of the participant (Table 1). The RT for each trial was recorded as the time interval between the onset of stimulus presentation and pressing the correct key. Words were selected randomly without replacement.

To ensure the internal validity of the experiment the main parameters were unchanged (the time of stimulus presentation, the intervals between stimuli, number of stimuli - the words, the font, chromatic background settings).

Table 1

## Violence Self-Concept IAT

Block	Trials	Function	Left-key response "Q"	Right- key response "P"
1	10	Practice	Me (w)	Others (w)
2	15	Practice	Violence (v)	Peace (v)
3	40	Test	Me(w)+Violence (v)	Others(w)+Peace (v)
4	45	Test	Me(w)+Violence (v)	Others(w)+Peace (v)
5	20	Practice	Others(w)	Me(w)
6	40	Test	Others(w)+Violence (v)	Me(w)+Peace (v)
7	45	Test	Others(w)+Violence (v)	Me(w)+Peace (v)

Note. v – visual category, w – verbal category.

## Results and Discussion

**Variables.** The following variables were used:

*D(IAT)*, *D* – implicit associations towards violence.  $D \geq 0.15$  indicated implicit preference of violence,  $D \leq -0.15$  – implicit preference of non-violence (meaning - peace),  $-0.15 < D < 0.15$  – no effect. We revealed that 6 % of participants have implicit preference of violence and 79 % have implicit preference of non-violence, which corresponds to previous researches, where IAT procedure has been used on violent criminals (Polaschek et al., 2010; Snowden et al., 2004).

*CAVs* – the strength of explicit criminal attitude towards violence. Quartiles are  $Q_1 = 38.5$ ,  $Q_3 = 61$ . If  $CAVs \leq 38.9$  the level of explicit attitude towards violence is low, if  $CAVs \geq 61$  - high.

*Vulnerability* - (*Vulnerability*  $\geq 57$  high, *Vulnerability*  $< 57$  low). Two scales: *Insecurity* (*Insecurity*  $> 30$  high, *Insecurity*  $\leq 30$  low) and *Proximity Seeking* – (*Proximity Seeking*  $\geq 27$  high, *Proximity Seeking*  $< 27$  low).

*Attachment Styles* (Figure 1): *Secure Style* (*Insecurity*  $\leq 30$ ), *Insecure Anxious Style* (*Insecurity*  $> 30$  and *Proximity Seeking*  $\geq 27$ ), *Insecure Avoidant Style* (*Insecurity*  $> 30$  and *Proximity Seeking*  $< 27$ ),

*Psychoticism*, *Neuroticism*, *Extraversion*.

*Age*, *Previously Sentenced* (times)- how many times the participant has been previously sentenced, *Previously Imprisonment* (times) – how many times the participant has concluded a prison sentence before the present, *waiting at home*- is there someone waiting for him at home.

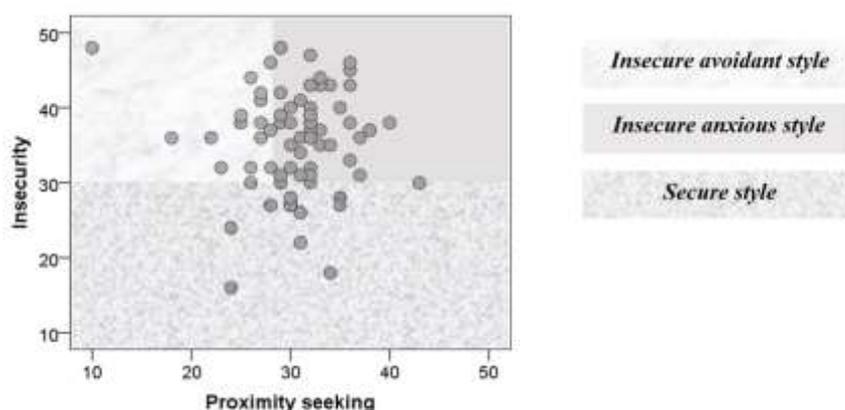


Figure 1. Attachment styles: scatter.

The study of the data showed that the data distribution allows the use of parametric statistics methods. Methods of statistical data processing were chosen in accordance with the research questions.

**To answer the first research question** "Which attachment style is more common for violent offenders?" a frequency analyses: "Fisher's angular transformation  $\phi^*$ -test" was used.

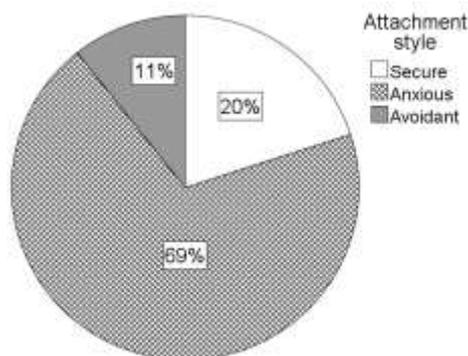


Figure 2. Attachment styles for two groups.

The proportion of prisoners with an anxious-ambivalent attachment style (69%) statistically significantly exceeds the proportion of prisoners with secure attachment style (11%) and avoidant attachment style (20%): ( $\varphi^* = 7.98$ ; two-tailed, effect size = 1.30, large and  $\varphi^* = 6.37$ ; two-tailed, effect size  $h = 1.04$ , large), respectively (Figure 2).

Table 2

**$\varphi^*$ - test: “Fisher's angular transformation”. Attachment Style.**

Effect size  $h = |\varphi_1 - \varphi_2|$  (0.2 - low, 0.5 - medium, 0.8 – large)

1	2	$k_1$	$k_2$	$n_1$	$n_2$	$p_1$	$p_2$	$\varphi_1$	$\varphi_2$	$\varphi^*$	$h$	$p$
Secure	Anxious	15	52	75	75	20.00	69.33	0.93	1.97	<b>6.37</b>	1.04	0.000
Secure	Avoidant	15	8	75	75	20.00	10.67	0.93	0.67	1.60	0.26	0.11
Anxious	Avoidant	52	8	75	75	69.33	10.67	1.97	0.67	<b>7.98</b>	1.30	0.000

Note.  $k_i$  – the number of participants with the researched effect from group with size  $n_i$ ,  $i = 1; 2$ ,  $p_i = \frac{k_i}{n_i} \cdot 100\%$ ,  $\varphi_i = 2 \arcsin \sqrt{p_i/100}$ ,  $\varphi^* = |\varphi_1 - \varphi_2| \sqrt{\frac{n_1 n_2}{n_1 + n_2}}$  - Fisher’s angular transformation

test,  $h = |\varphi_1 - \varphi_2|$  - effect size (Cohen, 1988, p.181),  $p$ -value for statistic  $\varphi^*$  (normal distribution,  $\mu = 0$ ,  $\sigma=1$ ), two-tailed,  $H_0$ :  $p_1$  and  $p_2$  have a random difference.

Data shows that anxious-ambivalent attachment style is more common for violent prisoners. D. Dutton (Dutton, Golant, 1995; Dutton, 2006) found that the majority of male offenders, who have committed a crime of domestic violence, have insecure attachment. Approximately 40% of the individuals have anxious- ambivalent attachment style. It has been stated that individuals, who have anxious- ambivalent attachment style suffer from extreme jealousy and fear to lose the partner (Shaver, Balsky, Brennan, 2000). Jealousy, insecurity and inability to manage conflicts in a healthy manner can trigger violence.

**To answer the second research question** “Is there a relationship between vulnerability, insecurity, proximity seeking, violence (measured with implicit measurement methods and self-assessment procedures), personality traits and times of previous convictions?” correlation coefficients Pearson ( $r$ ) and Spearman ( $r_s$ ) were used. The results are shown in the Table 3 and Figure 3.

There were correlations found between the scales of VASQ and EPQR-A. Between *Vulnerability* and *Neuroticism*, a positive correlation was found and between *Vulnerability* and *Extroversion*, a negative correlation relationship is found (high vulnerability relates to high neuroticism and high vulnerability relates to low extroversion (thus, introversion) and vice versa). Between *Insecurity* and *Neuroticism* a positive correlation was found. There is a negative correlation between *Insecurity* and *Extroversion* indicating that introvert people tend to be more insecure and vice versa. Between *Proximity Seeking* and *Psychoticism* a tendency to negative correlation was found. These findings partly correspond to the theory (Eysenck, 1977; Fonagy et al., 1997). A positive correlation is found between *Vulnerability* and *Insecurity* and between *Vulnerability* and *Proximity seeking*.

A relationship was found between factors of VASQ and attitudes towards criminal violence. Between *Vulnerability* and *CAVs* a positive correlation was found indicating that explicit pro-violence attitudes have a relationship with high level of vulnerability.

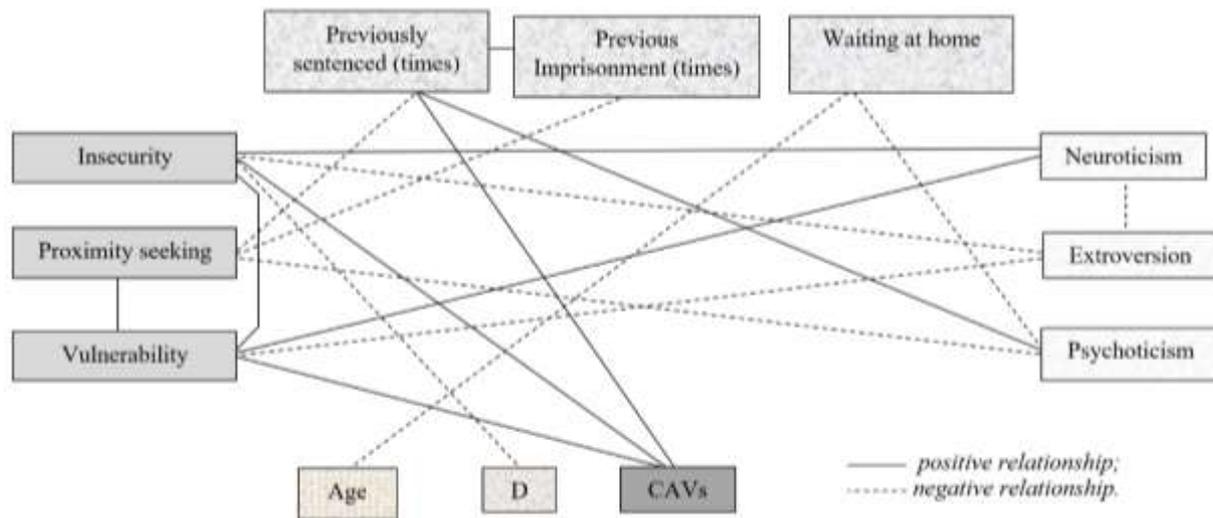


Figure 3. Relationships' diagram.

There is a negative correlation between *Insecurity* and *D (IAT)*, but a positive correlation between *Insecurity* and *CAVs*. Low insecurity (indicating security) corresponds to implicitly measured pro-violence attitude. On the other hand, high insecurity corresponds to explicitly measured pro violence attitude. Meaning that even individuals with secure attachment style can have implicit pro-violence attitudes, but they will not admit them. The fact that it was a sample of violent prisoners confirms to the results.

Table 3

**Pearson's and Spearman's correlation coefficients (for  $p < 0.10$ ).**  
**Effect size  $r$  (0.1 - low, 0.3 - medium, 0.5 – large)**

Variable 1	Variable 2	Sentenced
Age	Waiting at home	$r_s(71) = -0.26, p = 0.030$
D	Insecurity	$r_s(75) = -0.24, p = 0.039$
Previously sentenced	Previous Imprisonment	$r_s(71) = 0.70, p < 0.001$
Previously sentenced	CAVs	$r(71) = 0.29, p = 0.016$
Previously sentenced	Proximity seeking	$r(69) = -0.20, p = 0.095$
Previously sentenced	Psychoticism	$r(70) = 0.35, p = 0.003$
Previous imprisonment	Proximity seeking	$r(69) = -0.20, p = 0.070$
Waiting at home	Psychoticism	$r_s(70) = -0.21, p = 0.075$
CAVs	Vulnerability	$r(75) = 0.25, p = 0.029$
CAVs	Insecurity	$r(75) = 0.25, p = 0.031$
Vulnerability	Insecurity	$r(75) = 0.81, p < 0.001$
Vulnerability	Proximity seeking	$r_s(75) = 0.58, p < 0.001$
Vulnerability	Neuroticism	$r_s(74) = 0.43, p < 0.001$
Vulnerability	Extroversion	$r_s(74) = -0.33, p = 0.005$
Insecurity	Neuroticism	$r_s(74) = 0.53, p < 0.001$
Insecurity	Extroversion	$r_s(74) = -0.36, p = 0.002$
Proximity seeking	Psychoticism	$r(74) = -0.19, p = 0.099$
Neuroticism	Extroversion	$r(76) = -0.34, p = 0.003$

**To answer the third research question** “Is there a relationship between attachment styles (secure, anxious, avoidant) and attitudes towards violence and personality traits?” one-way ANOVA, Post Hoc test – Scheffe were used. The results are shown in the Table 4 and Figures 4-9.

Table 4

**Relationship between Attachment Styles and D(IAT), CAVs, Insecurity, Proximity seeking, Neuroticism, Psychoticism and Extraversion among sentenced**  
 Effect size  $\eta^2$  (0.01 - low, 0.06 - medium, 0.14 – large)

Variables		Sentenced	Effect size
Attachment Styles	D(IAT)	$F(2, 72) = 1.20, p = 0.31, \eta^2 = 0.032, ns$	Low (Figure 4).
	CAVs	$F(2, 72) = 1.93, p = 0.15, \eta^2 = 0.051, ns$	Low (Figure 5).
	Neuroticism	$F(2, 71) = 10.0, p < 0.001, \eta^2 = 0.22$	Large (Figure 6)
	Psychoticism	$F(2, 71) = 0.19, p = 0.83, \eta^2 = 0.005, ns$	No effect (Figure 7)
	Extraversion	$F(2, 71) = 4.46, p = 0.015, \eta^2 = 0.11$	Medium (Figure 8)
	Previously sentenced	$F(2, 66) = 1.11, p = 0.337, \eta^2 = 0.032$	Low (Figure 9)

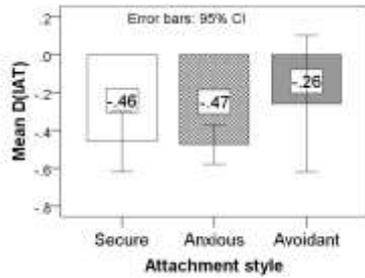


Figure 4. Means of D for Attachment styles.

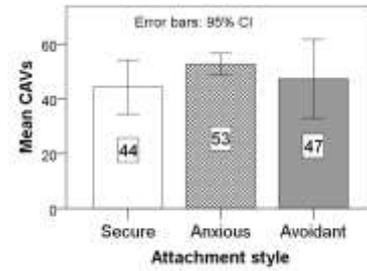


Figure 5. Means of CAVs for Attachment styles.

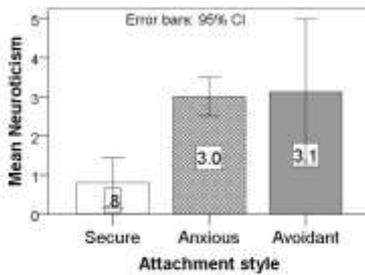


Figure 6. Means of Neuroticism for Attachment styles.

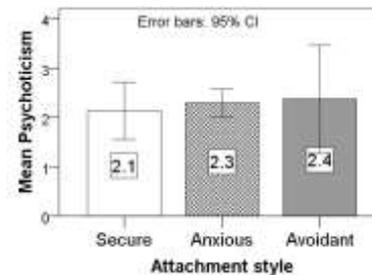


Figure 7. Means of Psychoticism for Attachment styles.

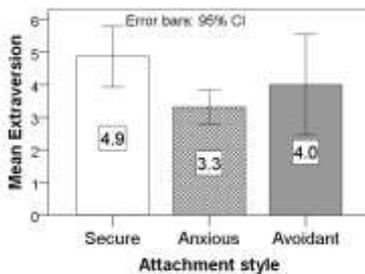


Figure 8. Means of Extraversion for Attachment styles.

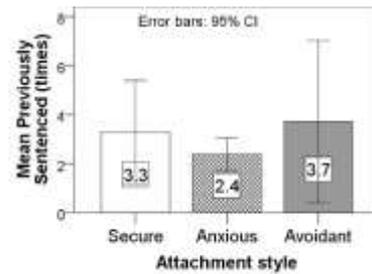


Figure 9. Means of Previously sentenced times for Attachment styles.

The relationships between *Attachment Style* and *Neuroticism*, *Extraversion* were revealed. Namely: the means of *Neuroticism* in the groups with *Anxious* and *Avoidant Attachment Styles* exceed the mean of *Neuroticism* in the group with *Secure Attachment Style*. Effect size is large (Figure 6).

The mean of *Extraversion* in the group with *Secure Attachment Style* exceeds the mean of *Extraversion* in the group with *Anxious Attachment Style*. Effect size is medium (Figure 8).

The relationships without statistical significance are revealed.

- The means of *D(IAT)* in the groups with *Secure* and *Anxious Attachment Styles* exceed the mean of *D(IAT)* in the group with *Avoidant Attachment Style*. Effect size is low (Figure 4).

- The mean of *CAVs* in the group with anxious attachment style exceeds the mean of *CAVs* in the group with *Avoidant Attachment Style*, which exceeds the mean of *CAVs* in the group with *Secure Attachment Style*. Effect size is low (Figure 5).
- The mean of *Previously Sentenced Times* in the group with *Avoidant Attachment Style* exceeds the mean of *Previously Sentenced Times* in the group with *Secure Attachment Style*, which exceeds the mean of *Previously Sentenced Times* in the group with *Anxious Attachment Style*. Effect size is low (Figure 9).

**To answer the fourth research question** “What contribution to implicitly estimated attitude towards criminal violence is made by vulnerability and its scales (insecurity and proximity seeking), personality traits, previously sentenced times and the explicitly estimated attitude towards criminal violence?” it was necessary to research the contribution of independent variables *CAVs*, *Vulnerability*, *Insecurity*, *Proximity Seeking*, *Neuroticism*, *Psychoticism*, *Extraversion* and *Previously Sentenced Times* to the dependent variable *D(IAT)*, the multiple regression analysis was used.

Method “*Backward*”. The equation for estimations:

$$D(IAT)(estimate) = -0.150 + 0.005 * CAVs - 0.020 * Insecurity + 0.044 * Neuroticism.$$

\*multiplication sign

The impact of each independent variable defines by “Beta-coefficients” ( $\beta$ ). The Beta coefficients are the coefficients in standardized regression equation.

The greatest impact on *D(IAT)* is made by the variable *Insecurity* ( $\beta_1 = -0.377$ ,  $p = 0.012$ ) then, by *CAVs* ( $\beta_2 = 0.238$ ,  $p < 0.059$ ) and then by *Neuroticism* ( $\beta_3 = 0.234$ ,  $p = 0.097$ ).

*R-Square* = 0.116 shows, that 11.6% of variability of the dependent variable *D(IAT)* is due to the influence of the independent variables *Insecurity*, *CAVs* and *Neuroticism*. Adjusted *R-square* = 0.075. Standard error of estimate is 0.35. The result of ANOVA is:  $F(3, 64) = 2.81$ ,  $p = 0.047$ .

The greatest impact on *D(IAT)* is made by the variable *Insecurity* then, by *CAVs* and then by *Neuroticism*. *Insecurity* contribution to *D(IAT)* is negative. It corresponds to the correlations gained.

**To answer the fifth research question** “What contribution to explicitly estimated attitude towards criminal violence is made by vulnerability and its scales (insecurity and proximity seeking), personality traits, previously sentenced times and the implicitly estimated attitude towards criminal violence?” it was necessary to research the contribution of independent variables *D(IAT)*, *Vulnerability*, *Insecurity*, *Proximity Seeking*, *Neuroticism*, *Psychoticism*, *Extraversion* and *Previously Sentenced Times* to the dependent variable *CAVs*, the multiple regression analysis was used.

Method “*Backward*”. The equation for estimations:

$$CAVs(estimate) = 23.630 + 9.904 * D(IAT) + 0.755 * Insecurity + 1.612 * Previously Sentenced Times.$$

The greatest impact on *CAVs* is made by the variable *Insecurity* ( $\beta_1 = 0.336$ ,  $p = 0.004$ ) then, by *Previously Sentenced Times* ( $\beta_2 = 0.286$ ,  $p = 0.012$ ) and then by *D(IAT)* ( $\beta_3 = 0.228$ ,  $p = 0.047$ ).

*R-Square* = 0.219 shows, that 21.9% of variability of the dependent variable *CAVs* is due to the influence of the independent variables *Insecurity*, *D(IAT)* and *Previously Sentenced Times*. Adjusted *R-square* = 0.183. Standard error of estimate is 14.24. The result of ANOVA is:  $F(3, 64) = 6.00$ ,  $p = 0.001$ .

The greatest impact on *CAVs* is made by the variable *Insecurity* then, by *Previously Sentenced Times* and then by *D(IAT)*. *Insecurity* contribution to *CAVs* is positive. It corresponds to the correlations gained.

**To answer the sixth research question** “What common factors underlie the relationship between the results of measurements of the implicit and explicit attitudes towards the violence, vulnerability attachment styles and the personality traits and previously sentenced times of violent criminal offenders?” a set of variables were selected: *D(IAT)*, *CAVs*, *Vulnerability*, *Insecurity*, *Proximity Seeking*, *Neuroticism*, *Psychoticism*, *Extraversion*, *Previously Sentenced Times*, and a factor analyses was applied (Principal Component Method, Rotation Varimax, total variance explained 61%, three factors). Rotation of the reduced matrixes led to the isolation of three factors (Table 5, Figure 10-13), named “VIN” (Vulnerability-Insecurity-Neuroticism), “PPP” (Previously Sentenced-Psychoticism - Proximity Seeking) and “Attitude towards violence”.

The first component "VIN" includes variables *Vulnerability*, *Insecurity* and *Neuroticism* (Table 5; Figure 10, 11, 12). All three factors have been linked by researchers to psychological disorders, mainly - depression. It was hypothesised that personality trait - neuroticism combined with poor support indicated by high vulnerability and insecurity scores provide best known model for depressive disorder, because it suggests an input from social environment and psychological factors (Brown, Bifulco, Andrews, 1990).

Table 5

**Rotated Component Matrix<sup>a</sup>**

	Component		
	1	2	3
Vulnerability	0.916		
Insecurity	0.887		
Neuroticism	0.683		
Extraversion			
Previously Sentenced (times)		0.788	
Psychoticism		0.707	
Proximity seeking		-0.556	
D(IAT)			0.801
CAVs			0.632

<sup>a</sup> Extraction Method: Principal Component Analysis.  
Rotation Method: Varimax with Kaiser Normalization.

The second component is called "PPP", it includes variables Previously Sentenced times, Psychoticism and Proximity Seeking with a minus sign (Table 5; Figure 10, 12, 13). According to the results, a high number of previous sentences, high psychoticism scores, which are common in individuals, who are aggressive, antisocial and egocentric (Eysenck, 1977) and low level of proximity seeking, are connected.

The third component is called "Attitude towards violence" (Table 5; Figure 10, 11, 13), which is interesting, because it includes implicitly and explicitly measured attitudes towards violence, although there was no correlation found (Figure 3.). The fact that this factor was formed shows that the specially designed Self-Concept IAT measures attitudes towards criminal violence as CAVs does.

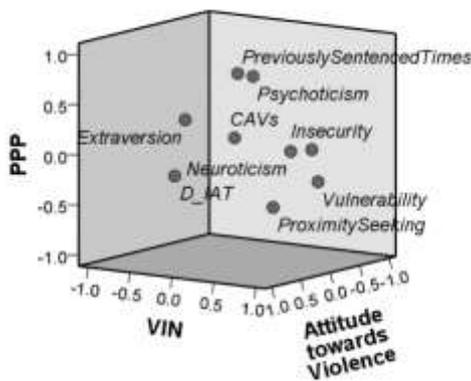


Figure 10. Components' "VIN", "PPP" and "Attitude towards Violence" Plot in Rotated Space.

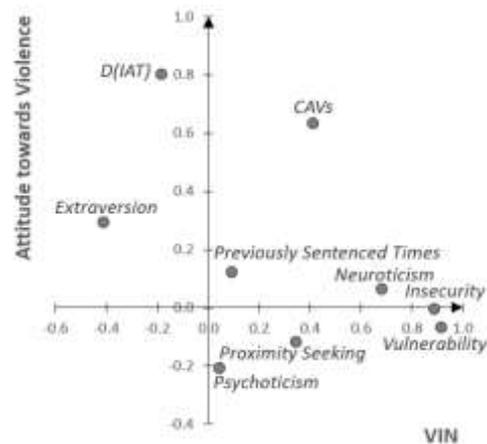


Figure 11. Components' "VIN" and "Attitude towards Violence" Plot in Rotated Space.

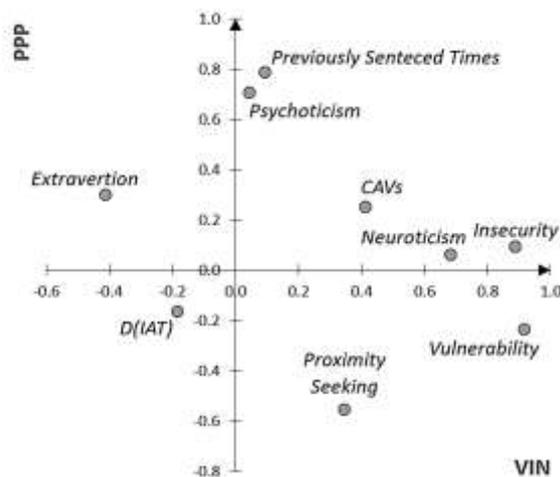


Figure 12. Components' "VIN" and "PPP" Plot in Rotated Space.

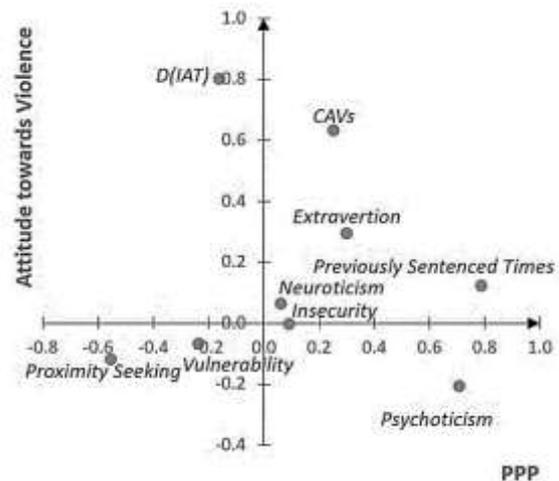


Figure 13. Components' "PPP" and "Attitude towards Violence" Plot in Rotated Space.

## Conclusions

In the theoretical background attachment theory leading to adult attachment styles in the connection of criminal violence was analysed, as well as personality theories and the relationship of personality traits and criminal violence. It was stated that both - attachment and personality trait - theories are biologically based, at the same time they are influenced by social factors. The studies showed that insecure attachment styles (avoidant, anxious ambivalent) are connected to criminal violence and high levels of neuroticism, psychoticism and extraversion are also connected to criminal violence.

To measure implicit attitudes towards criminal violence, specially designed Self-Concept Implicit Attitude Test was constructed for the present research. Both pictorial (visual) and verbal stimuli were used. Categories- self and others (verbal stimuli) and attributes- criminal violence and peace (visual stimuli). To measure attachment styles, personality traits and explicit attitudes towards violence self-report procedures were used. The sample of the study consisted of violent criminal offenders undergoing their sentence in high-security prisons in Latvia.

The results showed that anxious-ambivalent attachment style is more common for violent prisoners. It was found that high vulnerability rates are related to high neuroticism and high vulnerability relates to low extroversion (thus, introversion) and vice versa. It was found that introvert people tend to be more insecure and vice versa. Between Proximity Seeking and Psychoticism, a tendency to negative correlation was found. The results also showed that explicit pro-violence attitudes have a relationship with high level of vulnerability.

It was found that the greatest impact on implicitly measured attitudes towards criminal violence is made by the variable *Insecurity* then, by *CAVs* and then by *Neuroticism*. The greatest impact on explicitly measured attitudes towards criminal violence is made by the variable *Insecurity* then by *Previously Sentenced Times* and then by *D(IAT)*. Factor analyses indicated three factors named "VIN" (Vulnerability-Insecurity-Neuroticism), "PPP" (Previously Sentenced-Psychoticism -Proximity Seeking) and "Attitude towards violence".

The results can be used in the process of re-socialization by prison psychologists working with violent prisoners, in understanding why the criminal attitudes are formed that leads criminals to violent behaviour.

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## The Development Trends of Management of the Institutions of Vocational Music Education in Latvia

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**Abstract:** Music education system in Latvia consists of state, municipal and private education institutions that provide vocation-oriented, vocational secondary and higher education programs. Industrial and field policy is prepared by the Ministry of Culture, its' implementation is coordinated and managed by the Latvian National Cultural Centre. But the leadership and development of institutions of the vocational music education in Latvia is a responsibility of the music school leaders. The main object for the research is the development trends of management of the institutions of vocational music education. The aim of the article is to study and analyse the development trends of management of the institutions of vocational music education in Latvia in last five years and in current situation. Using analysis of scientific literature, statistics and normative documents, as well as interviews, in this article authors gives an overview of the main development trends of vocational music education system in Latvia and analyses interview results pointing out the advantages of the management strategies and problems in the institutions of vocational music education in Latvia.

**Keywords:** vocational music education, management, school leadership, leader.

### Introduction

In this paper authors continue their previous research by analysing the development trends of management of the institutions of vocational music education in Latvia which are important in the context of education system as whole. The emphasis on music schools was chosen, giving a focus on the main aspects of development trends of management of previously mentioned institutions.

In addition, in previous literature research authors of the paper have analysed two core concepts – *educational management* and *school leadership* more detailed giving an insight into the range of definitions and approaches by different authors (Bush, 2007, 2008; Sun, 2014; Black, 2007; Hallinger, Chen, 2015; Steward, 2014; Northfield, 2014; Spillane, Halverson, Diamond, 2004; Jamali, 2005). In summary one of the main conclusions is that effective leadership and management are increasingly regarded as essential if music schools are to achieve the wide-ranging objectives set for them by their many stakeholders (Stige-Skuskovnika, Davidova, 2015).

The goal of vocational education is to provide opportunities for further education after the elementary or secondary school, to acquire initial vocational qualifications, develop skills for continuing vocational education, and acquire the right to continue education at a higher education level. Vocational institutions in Latvia offer educational programs in all sectors of economy.

Cultural education system in Latvia consists of state, municipal and private education institutions that provide vocation-oriented, vocational secondary and higher education programs. They provide training of professional artists, musicians, dancers, cultural and pedagogical professionals (Latvijas nacionālais kultūras..., 2017). Industrial and field policy is prepared by the Ministry of Culture, its' implementation is coordinated and managed by the Latvian National Cultural Centre.

The leadership and development of institutions of the vocational music education in Latvia is a responsibility of the music school leaders whose job has been transformed by extraordinary economic, demographic, technological and global change. This aspect points to an important role of the management skills and knowledge that has become very important for school leaders.

Unfortunately, school leaders mostly are educated in music, performing arts, pedagogy but very rarely they have specific knowledge or/and education in management and leadership despite of its impact on the development of all school processes and pedagogical environment.

The latest review of the Organisation for Economic Cooperation and Development (OECD) states a school leader as a key person in any school. In both general education and vocational schools, school leaders are supported by deputy school leaders. School leaders are usually teachers who were promoted to (deputy)

principals upon passing a local competition (OECD, 2016). Here authors see the connection with L. Lashway's (Lashway, 2003) point of view that leaders must define themselves as learners, not just doers, constantly scanning the environment for new ideas, tools, and solutions, and reflecting on the implications.

In the context of music school leadership authors studied leader's concept as well. School leaders are those persons, occupying various roles in the school, who provide direction and exert influence in order to achieve the school's goals. Leadership functions can be carried out in many different ways, depending on the individual leader, the context, and the nature of the goals being pursued (Leithwood, Riehl, 2003).

As the title of the study indicates, attention is given to the development trends of management of the institutions of vocational music education in Latvia. This view, by definition, involves changing the major source of inspiration for educational leadership away from management and towards education and learning.

Until now the authors of this paper have given a first insight in school management direction and situation analysis of the field of vocational music education in Latvia. No similar research was carried out thereby giving an invaluable contribution for the general characteristics of the vocational music education field at all giving a helpful background for the further development activities made by to the Latvian National Cultural Centre. In this article authors shows interview results and gives the advantages of the management strategies and problems in the institutions of vocational music education in Latvia.

The aim of the study is to study and analyse the development trends of management of the institutions of vocational music education in Latvia in last five years and in current situation.

## **Methodology**

The research presented in the paper is part of a larger project analysing the topicalities of management in the institutions of vocational music education in Latvia. In this study the key task is to analyse interview results and understand the current situation of the management strategies and problems in previously mentioned educational institutions.

Till now authors have conducted three semi-structured interviews with eight open questions. According to H.R. Bernard (2006) semi-structured interviewing works very well in projects where you are dealing with high-level bureaucrats and elite members of a community. This type of interviewing is based on the use of an interview guide. This is a written list of questions and topics that need to be covered in a particular order.

The three representatives from public administration were selected on purpose: one informant represents the Ministry of Culture of the Republic of Latvia, two informants – the Latvian National Culture Centre. These informants were selected because of their strong link with music schools which are in subordination of these institutions as it was explained in previous pages of this paper. Also, informants are in direct communication with the principals of these music schools but on their request, authors will keep their anonymity and confidentiality.

Interviews were organized separately with each person "face-to-face", took place at informants' office. Each interview lasted 1-2 hours and was recorded: questions with the aid of a topic list were asked, and possibly additional questions at the end of the interview were posed. Afterwards each interview was transcribed in full to create a written protocol.

Informants were asked about their opinion of current performance of the institutions of vocational music education, tasks given to principals and other aspects of leadership in eight questions. Questions mainly focused on principal's personality as a leader – necessary competences, criteria of evaluation and professional development possibilities. One of the important questions to informants was about future improvement options in the leadership of institutions of vocational music education.

## **Results and Discussions**

The analysis of results is given sequentially question by question comparing answers by all informants. For this paper authors have chosen to include the most significant points of view to provide the insight into the current situation to the reader.

*The first question given by authors was directed to the informants individually to find out their opinion of current activities of the institutions of vocational music education,*

*Informant no.1:* Current professional cultural education in Latvia consists of three-grade system and provides succession of educational content – sequential shift into the next level of education, as well as gives a chance to young Latvian talents both to prove themselves to the world and successfully develop a high level of professionalism of Latvian professional labour market (*Kremerata Baltica*, Latvian Radio Choir, the Latvian National Opera and Ballet), which is competitive also in a global level.

*Informant no.2:* There is no common trend in music schools of Latvia, because of three different aspects. First aspect is that schools in Riga are working with professional orientation and higher quality to obtain the objective to target children at least try to enter secondary music schools and become professional musicians. Second aspect is regional schools of Riga where the population is growing steadily, and we face the situation that all the time additional school places are needed because the school is the only place where to stay. Third aspect is the rest of the music schools of Latvia. The further away from Riga, the greater part of it takes a social function. Rural schools are trying to attract children to music schools, so they can get a good cultural education and be able to have a chance to get away from that social environment in which they live. So, because of these aspects it's very difficult to find one trend that could characterize all music schools of Latvia.

*Informant no.3:* Music schools are more than the post offices – post offices are closing, but music school are opening. Each school has its own story and contingent of students that comes to the school. If, for example, in Latgale region there are few students, then students in Riga are so much that it's not possible to admit all of them because of the lack of teachers or overload of the existing. There are schools with its own history and union where historically has developed a focus on a particular specialization (for example, Limbaži music school has focused on accordion specialization). In one city music school fulfils school and education function, in another – cultural institutions' function. Authors conclude that vocational education of music in Latvia is in the high level of professionalism and gives great musicians to the world. But also, all informants emphasize one important trend – each music school chooses which function (educational or social) to realize and mostly it depends on geographical location of the music school, number of pupils and social environment.

In the second question authors asked informants *if music school principals have to carry out specific tasks for the development of the institutions of vocational music education given by their represented institutions of supervision*. All informants denied this statement and stressed that music schools have their freedom in decision making – how to achieve the quality and realize all programs in the frames of school accreditation. Of course, there are some principals who would like to have concrete tasks as it was more than 25 years ago, but informants are sure that current approach gives more free space for creation of individual ideas and self-motivation.

The next two questions focused on music school principals and asked *to what extent the activities of the institutions of vocational music education depends on its' principal and what are the most important competences of principals for the effective leadership*.

*Informant no.1:* In my opinion, activities of the music school and, in particular, its' development is highly dependent on its' leader – principal. The importance is in the management of work processes, communication with staff, Latvian National Cultural centre, local authorities and representatives of the government, pupils and their parents. Very often principal of the school is a “business card” and gives the impression to the others. Very important is principal's vision of the schools' development, sense of mission, strategic and administrative thinking, ability to promote new ideas, inspiring and persuading his/her employees, pupils and others.

*Informant no.2:* The principal is responsible for everything including all classical management functions. The principal is the head of the school, the most important person. Actually, everything depends on him. Here it's important to understand that the principal is not the first of the teachers and that the director is not the failed musician. The principal is the leader of the school. He has to understand the process of documentation because at the moment there is a situation that the various documents are so many that principal must be able to orientate and understand what is specifically needed for his/her school and in what way which document protects him/her. Especially in Riga and Riga region pupils have very well-educated parents who come to the principal with different kind of activities and complaints. The principal shall be a true leader. If he/her comes from the music industry it's a bonus because then he/her has a better understand with the teachers and pupils, and in the same time he/her can be a good example for pupils.

*Informant no.3:* Primarily the principal has to know principles of music schools as entities. The second factor in all educational institutions is money. The principal must be able to attract money in order for the school to work. And then there is a need to understand what to do with the money, where to invest, rather than just earn it. As is known, it is difficult to earn much money in the field of art, especially knowing the salary of school heads. The school leader must be a personality that wants to do or prove something through the work in music school rather than just earn the living. Because the responsibilities of music school principals are much higher than monetary gain.

*Informant no.1:* In my opinion, important is the ability of communication, knowledge of present situation in musical world and also understanding of historical values. Also important is knowledge of administrative work and application of legislative acts relevant to school life. I see that principal of school needs to know how to lead a team and represent the school with honour.

To the first part of question all informants stress the importance of principal as a leader. Leader who has knowledge of management principals and who is a strong personality with high moral standards and vision of school development and future. The second part of this question shows the competencies which was highlighted by informants. Dominant of them are ability to communicate with different groups of people and institutions, strategic and administrative thinking and ability to attract the money. Especially the last competence is one of the core abilities for the school development and growth, according to the authors, because of the financial situation and subsidization of music schools in Latvia last years.

In *the next few* questions authors have chosen to find out following aspects for the principals of the institutions of vocational music education – *dominant criteria for the election, evaluation criteria and evaluation system, professional development possibilities and courses.*

All informants confirmed that there are just standard criteria for the election of new principal. These criteria are defined in the Regulations of the Cabinet of the Ministers and they include such aspects as 1) bachelor's or master's degree in education or pedagogy, 2) at least three year work experience in the institution of cultural education, 3) at least three year administrative work experience in leading position in the institution of education or culture, 4) excellent skills of Latvian language (minimum level C1) and at least two foreign languages (minimum level B1), 5) experience in project management and others. Only informant no.3 added that principals are selected by municipalities and institutions in supervision of music schools (such as Latvian National Cultural Centre) have no rights to interfere in decision making. So, it means that principals are recruited by municipalities.

Concerning evaluation criteria and evaluation system of music school principals all informants agreed that there is no system which evaluates principals and that all of them have non-terminated contract. At the moment the reference point is the accreditation and self-assessment report annually. Just informant no.2 notes that State Education Quality Service is considering evaluation system, but this is a very contradictory question because it would require additional capacity to cover all institutions of general education and vocational education (more than 500). Professional development courses for principals are organized six times in the study year by Latvian National Cultural Centre. According to interests of principals the courses and seminars are connecting with such topics as educational leadership, documentation and regulations, rights of children, communication and others.

*Informant no.3* added that there are some school principals who attend all the courses, finding a professional fulfilment this way. And later it shows in school performance. These principals are very active – involve their pupils in different activities, take them to competitions and act as performing musicians themselves.

The last question of the interviews was about future improvement options in the leadership of institutions of vocational music education where informants were asked for their personal vision.

*Informant no.1:* The school principals have to improve their knowledge in the management of creative industries. They must communicate more with partners, competitors, current and future benefactors. They must cooperate with state concert organizations and Jāzeps Vītols Latvian Academy of Music. They must look for partners abroad. Also, they need to improve the knowledge of marketing and activities in this direction.

*Informant no.2:* I would like that music schools would not only prepare pupils for future professional work but would give a contribution to the development of daily music culture. One of the goals of music

schools is to prepare a knowledgeable audience. I think that this preparation is not broad enough. One side is that there are people who love to attend concerts, exhibitions and know how to evaluate what they see. Other side is that there are only few people left that use their musical skills in everyday life by, for example, doing music in their interest groups or families.

One more thing what the school principal must do is to make a good team of program directors. And principal must support this team, so that it can work and cultivate school's prosperity. This direction has lots of space for development.

*Informant no.3:* Nobody has been taught professionally to be a principal of the school. That's why there could be a "school of principals" where topics important to principal work are discussed. One direction of these topics – documentation and formalities, second – creative work and marketing, public relations. Also, in my opinion, school principals must learn to work more closely with teachers that can give important insights for the school development.

Having processed the results of informants' interviews, authors provided some standpoints characterizing their stance in Table 1.

Table 1

### Main statements from informants' interviews

Informant	Statements from informants' interviews
<i>Informant no.1</i>	<ul style="list-style-type: none"> <li>• Current professional cultural education in Latvia is competitive in a global level</li> <li>• Music schools have their freedom in decision making</li> <li>• Activities of the music school and its' development is highly dependent on its' leader – principal</li> <li>• The school principals have to improve their knowledge in the management of creative industries and marketing</li> </ul>
<i>Informant no.2</i>	<ul style="list-style-type: none"> <li>• There is no common trend in music schools of Latvia, because of three different aspects</li> <li>• Music schools have their freedom in decision making</li> <li>• Everything depends on principal, he shall be a true leader</li> <li>• The school principal must make a good team of program directors and support this team for the school development</li> </ul>
<i>Informant no.3</i>	<ul style="list-style-type: none"> <li>• In one city music school fulfils school and education function, in another – cultural institutions' function</li> <li>• Music schools have their freedom in decision making</li> <li>• The school leader must be a personality that wants to do or prove something through the work in music school</li> <li>• The school principal must learn to work more closely with teachers that can give important insights for the school development</li> </ul>

The answers to interview questions emphasizes four main trends, in opinion of the authors:

- knowledge improvement (creative industries and management, documentation, marketing and public relations);
- cooperation with teachers, program directors and institutions of the musical field;
- musical education not only as a future profession, but just as important – musical skills and inspiration for music making in everyday life;
- the school development depends on its' principal who has to be a true leader.

### Conclusions

Authors conclude that effective leadership and management are increasingly regarded as essential if music schools are to achieve the wide-ranging objectives set for them by their many stakeholders, notably the governments which provide most of the funding for public educational institutions. A number of the factors that are essential to the effectiveness and performance of music schools are under the control of principals.

As stated in Latvian regulations recruitment of school principals depends highly on their teaching qualifications and experience. There are just standard regulations of the Cabinet of Ministers on school principal recruitment. Music school principals are recruited with non-terminated contract by municipalities of Latvia which means that the Latvian National Cultural Centre has no possibilities to interfere in decision-making.

Analysing results of the research we formulated the following conclusions.

1. There is no common tendency for all institutions of vocational music education in Latvia because capital city and other big cities concentrate on professional level and quality, but regional music schools mostly realize social function for children and their everyday life. Music schools should prepare students not only for future professional career but also give a contribution to the improvement of everyday musical culture.
2. More than 25 years music schools did not have strategic tasks from their institutions of supervision: it gives freedom in decision-making process and deepens self-motivation to achieve individual ideas.
3. Principals have to be able to lead team work, represent his/her school and communicate appropriately, to have knowledge in organisation of administrative work process, which based on music and human values.
4. For improving the competence of music school principals in Latvia is necessary to create system of principals' professional development.

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## Basic Principles of National and International Standards Convergence in Teaching Languages for Non-Linguistic Students

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**Abstract:** The topicality of the research is the use of modern theories of speech generation, developed in neuro-linguistics, including the disquisitions of the Moscow Psychological School, for the development of new foreign language teaching programs. The aim of the present research is to identify the basic principles for the convergence of national and international foreign language teaching standards – the opportunities and necessary conditions. Change in the approaches to the learning process as well as purposes of instruction, and methods of teaching and control, are considered to be the basic principles of convergence. The pivotal methodology of this study deals with the comparison of learning outcomes with the necessary competencies for graduates of non-linguistic specialties. The results of the research demonstrate the importance of combining communicative and cognitive approaches, as well as implementation of flipped learning, mobile learning, adaptive learning. The analysis of the theory of speech production in the Moscow psychological school enables the researchers to make conclusions about the necessity of combining communicative and cognitive approaches in the course of foreign language teaching. The use of these approaches makes it possible to activate the both hemispheres of the brain. Adaptation of the methods to the ultimate goal of learning and using the speech production principles will result in bridging the gap between the Western and Russian standards.

**Keywords:** university education, standards, competencies, convergence, speech production, approach.

### Introduction

The existence of the Russian and Western standards (Common European Framework..., 2017) dealing with the study of foreign languages, is the heritage of the historical past and the conservatism of Russian tradition in teaching foreign languages, which is based solely on the grammar-translation method. In Russia the foreign languages study programs for quite a long period of time have been based on the knowledge of language structure and the rules of formation of linguistic paradigms. The purpose of learning a foreign language for non-linguistic students was to make them able to perform translation (with the help of a dictionary) from a foreign language into Russian and to make them understand grammatical structures in terms of their correspondence with those of the Russian language.

The practical application of the language did not play a significant role in the educational process. This was determined by the ideological factors to a great extent. Nowadays such factors as the Bologna process (Bologna Declaration, 1999) concepts elaboration, the universities curricular elaboration for the Russian and foreign diplomas, the availability of education programs with a compulsory year or semester at a foreign university, the possibility to get a university degree in any another country, the university mobility implementation make the problem of convergence of national and international standards extremely important.

First and foremost, this concerns foreign language learning programs, since this subject is present in all the curricula of all the universities in question and it can be regarded as the basis of academic mobility in general. It should be noted within these lines that the convergence of standards does not so much imply the general education contents as there always be at least slight differences based on certain traditions and mentality, goals and approaches to knowledge and concepts, described both in linguodidactic disquisitions as well as practical manuals.

At the same time, the common methods and approaches in teaching, monitoring and evaluating the quality of the results should be taken into consideration in terms of convergence phenomena. Thus, the aim and purpose of the present work is to identify the basic principles for the Russian and Western educational standards convergence, taking the Russian tradition scientific achievements into consideration. The analysis of works of the researchers, the Moscow psychological school representatives, in the field of mechanisms of speech generation studies, conducted in the 2nd half of

the 20th century, determines the possibility to apply their issues to the Russian methods of teaching that can serve as the basic principle for the Russian and Western standards convergence.

We have to state with a share of regret that in Russia, the principles of the Moscow psychological school have not become part of the recent tradition of teaching in its due course, as it was mostly based on the old conservative representations. Thus, the aim of this report is to make an attempt to prove that the new competency-based standards in Russia (Obrazovatelnyj standart vishevo..., 2015) and the Western standards (Common European Framework..., 2017) are quite similar and focused on the practical application of a foreign language, and to demonstrate that the principles of the Moscow psychological school should be used as the basis of the domestic educational traditions to achieve the goal of convergence with the Western standards. The comparison of key thesis of neuro-linguistics in the works of L. Vygotsky (1987), A.R. Luria (1980), and T.V. Axutina (2014) with the principles of the communicative approach and the modern concepts of teaching developed in the Western tradition (mobile learning, adaptive learning, and flipped learning) is a new approach, which should be used in creating new programs in foreign languages learning in Russia.

### **Methodology**

The methodology of this research consists in comparing the traditional for the Russian educational system university methodology with that based on the modern international standards and competencies for non-linguistic students, where the use of a foreign language is required. To achieve reliable and valid results in terms of practical application of the knowledge of L2 and L3, we have conducted a survey of graduates from the Institute of Asian and African Studies at M.V. Lomonosov Moscow State University concerning their use of a foreign language in the present course of their practical activities. The main conclusion we have come to is that the graduates in question demonstrate fluency in a foreign language, due to the use of communicative teaching and learning method (11 graduates). At the same time 9 graduates of the years earlier (the period before 2000) face various difficulties in a foreign language skills application, as it is characterized with insufficient learning as far as the number of classes and the use of communication approach are concerned. On the whole, the choice of respondents was diverse: all of them are the university graduates, of different age and sex, the spheres of their activities are business, administration, including international organizations, education (getting Master's degree) in Russia and abroad (European countries). Thus, the basic conclusion of the survey analysis is that the previous standard was not focused on the practical application of linguistic knowledge and that it does not provide the basis for the further language development.

The second survey has been conducted with the other 20 respondents, whose occupation is teaching foreign languages in Russia. They were asked about the effectiveness of the new methods, such as mobile learning, flipped learning, adaptive learning. 14 teachers answered that they supported the use of the old Russian methods. 6 teachers remained supported the new methods and principles developed in modern neuro-linguistics, such as effective priming or connection with visual forms. Therefore, it is important to find the basis for convergence in the Russian tradition (Moscow psychological school by Vygotsky, Luria, Axutina), proving that there is some theoretical ground in it to perform the transition to the modern methods of teaching. This basis can be found in the results of psychological experiments underlying the theory of speech production, the laws of memory and attention.

### **Results and discussion**

When analysing traditions of teaching foreign languages, it is necessary to distinguish the following main components: students receive knowledge from the teacher in ready-made forms; they must learn this knowledge without their own analysis and then apply them in exercises. The basis for teaching a foreign language is grammar, which is taught as a set of rules, while the exceptions are memorized by heart. Statements are built as a result of conscious application of the rules. When constructing a statement, the main focus of attention is not the content, but the grammatical rule that should be applied. Vocabulary, selected fairly chaotically, chosen from a specific text, is memorized by the list and checked by translation dictation. The main form of control is the translation from a native language into a foreign language of individual sentences or small texts and so-called topics - prepared speaking on one of the topics covered. The main problem of teaching a foreign language in this method is impossibility to apply knowledge in practice: the vocabulary is limited to the volume learned, there is

no skill in understanding words from the context, the number of lexical units is limited, since word-formation models are not sufficiently developed, there is no skill in perceiving the content of the text as a whole for a limited period of time, without a literal translation. One of the main problems is the inability to perform a communicative professional task in a limited period of time. The skill of listening, and, consequently, speaking, is poorly developed, there is no natural tempo when pronouncing phrases.

The communicative approach, on the contrary, implies the transfer of the main activity from the language system to the development of communicative skills and, primarily, listening and speaking, the formation of the skill of working with a text as a whole for a certain period of time, developing the ability of understanding of words from the context and using word formation models (Harmer, 2015). The communicative approach is the only possible one in the university standard of instruction for the initial stages of language learning (A1 - A2 in European format). The competence approach, which is the basis of all programs and standards of the university education at present, involves the use of Language for professional purposes, that is the application of communicative skills in practice. The possibility of the solution of professional communicative tasks starts approximately from stage B1 of the all-European standard.

In the new standard of M.V. Lomonosov Moscow State University for students of non-philological specialties studying under the Bachelor's degree program, the following competencies, the formation of which presupposes the use of a foreign language, are distinguished.

Universal competence - 4. The student is able to carry out non-core (non-profile) communication in oral and written forms in a foreign language (s);

Universal competence - 5. The student is able to perceive the intercultural diversity of society in the socio-historical, ethical and philosophical contexts;

General professional competence - 2. Knowledge of general scientific and professional terminology and conceptual apparatus in its professional field of activity in Russian and foreign languages;

General professional competence - 3. The ability to work with original texts and sources (uncomplicated level of professional texts).

General professional competence - 7. Possession of skills in effective communication in a professional environment, the ability to professionally express thoughts in spoken and written speech.

The basic core of all the competencies mentioned is the use of language as a means of professional communication in practice. This approach to some extent contradicts the traditional methodology, which has been established and is still being applied in the universities. However, unlike the methodology adopted in the tradition, a completely different approach was founded and developed in the Moscow Psychological School in the works by its founders Lev Vygotsky, Alexei Leontyev and their disciples. They substantiated the so-called activity-based approach to learning, which correlates with the formation of competences processes. At the same time, it has not been used in the teaching of foreign languages to the full extent so far. For example, studying the mechanisms of aphasia in their patients, L. Vygotsky, A.N. Leontiev and their disciples (Vygotsky, 1987; Leontiev, 1981; Luria, 1980; Axutina, 2014), came to many interesting conclusions about mechanisms of speech generation in the native language, the attention phenomenon, both voluntary and involuntary, the functions of memory.

The basic model of speech generation in the concept of the Moscow Psychological School, the main conclusions of which were based on studies of aphasia in people who have received brain injuries, includes several levels. The first level is associated with the so-called inner speech activity, dealing with the content of an utterance. Then is the second level, the lexical grammatical one. At this level a selection of lexical units and their grammatical structuring are taking place. It is at this level that the actual utterance in the native or foreign language is being built. Here, the trained schemes of grammatical generation of the utterance and selection of the necessary vocabulary should be realized. The final stage of generating an utterance is its actual production in oral or written speech (Tapiero, 2014).

The main conclusion that can be drawn from their research is related to the presence of holistic (perception in general) and analytical approaches in working with language and text, the need to involve both the left (voluntary attention) and the right hemispheres of the brain (involuntary attention) in the learning process. The mechanisms for memorizing words are related either to their being related to one lexical block, or to

a certain context, which must be remembered precisely as a context, but not as a collection of individual words. The next very important point to be made is that grammar rules are much more of an explanation than a basis for constructing an utterance. The so-called grammatical figuration of an utterance occurs in the process of applying the developed automated grammatical constructions. Thus, there occurs the only assumption that mechanisms of speech production in the native language are adequate to the ones in a foreign language. In other words, the basis for creating foreign languages teaching methods is not so much a linguistic description of the language, but neurolinguistic mechanisms for generating utterances and forming practical results (competences) that should become the main criterion for evaluation.

According to the activity-based approach, psychological research in terms of learning process is organically connected with the basic idea, according to which the process of development of human consciousness is understood as education in its specifically human forms, that is, in the context of transfer the social and historical experience from one person to another. A.N. Leontiev stressed the need to change the organization of scientific work in the field of educational psychology, the basic requirement of which is that school to become the main place of work for a psychologist, his or her practical clinic (Leontiev, 1981). Within these terms a scientist should not behave both as a guest and an observer in an educational institution, but as an active participant in the pedagogical process, since the study of regularities of human's mental development are regarded as the determining factor in the elaboration of scientifically based methods of teaching and educating. The formation of individual mental processes first and foremost occurs in the course of the development of a particular activity of the personality in connection with the development of his or her psychological structure, direction and motivating peculiarities, but not only in the progressive order of maturation. In this respect, the following basic premises of the theory of activity deserve special attention: questions of the structure of activity, the problem of differentiation between activity and action, which is closely connected with the certain psychological study in the field of the semantic analysis of consciousness and practice of educating in terms of conscious attitude, that is, consciousness of the learning process. Human's personality should be considered not only an object of external influences, but primarily an independent and self-sufficient subject of life and development.

The main condition for the convergence of the national and international standards for teaching a foreign language is the convergence of methods and approaches to teaching, such as the method of submitting material, the role of a teacher, the priority of skills automation for the purpose of their subsequent practical application, the development of a natural rate of speech, the skill of rapid reading for the purpose of understanding text, the transmission of the content of the text as a whole, quick search for information in the text, writing with the use of set phrases and stable designs. All this assumes a fundamentally different approach to the construction of each lesson, to the forms of control and evaluation criteria. The most promising for integration into the traditional lesson model are modern concepts of flipped learning, mobile learning and adaptive learning (Covington, 1998).

The main feature of the flipped learning model is the extension of the phase of exercises. Students do the exercises in class under the supervision of a teacher, preparing the necessary theoretical issues at home. Such model is effective while training speaking and listening skills. The teacher has the ability to correct mistakes accurately (for example, by the "echo" method), and the students have the opportunity to correct them immediately by repeating the correct version after the teacher. The teacher has the opportunity to offer individual assignments depending on the "weak points" of the students. This learning model can be successively used for training grammatical and lexical skills, as well as for integrated skills, for example, listening and speaking, listening and writing. The direct control of a teacher provides the possibility to achieve the necessary results quickly enough. At the same time, it should be noted that the disadvantage of this method is the need for compulsory home preparation, which determines active participation of the students in the class work.

The concept of flipped learning is a complete change in the traditional relationship between a lesson with a teacher and a homework assignment. The most difficult thing within these terms is automating skills, applying them in practice - students should do it independently as homework assignments, the role of a teacher is limited to the source of new information and the controller. In the concept of flipped learning, new information is transferred to students in the form of homework, for example, when they read a text and find new grammatical phenomena, and in class the main role is played by skills automation, deepening of the material studied at home, exercises and application in practice (Flipped learning..., 2015; Straw et al., 2015). The peculiarity of this model is the possibility of clear control by

the teacher behind the most important phase of teaching foreign languages - for automating grammatically and lexically correct statements, dialogue with the teacher is the primary form of applying a foreign language in practice. Such a model in the teaching of foreign languages seems quite promising (although not without contradictions).

It should be added that there has been written quite a lot about mobile learning. Without the use of digital technologies, it is impossible to create a minimal foreign language environment when learning a foreign language. The importance of the mobile learning model has been repeatedly emphasized in a number of manuals (Attewell et al., 2010; DeGani, Martin, Stead, 2010; Colley, DeGani, Stead, 2010). The advantage of this model, especially when doing homework, is the lack of attachment to a certain location - a classroom, a workplace. The assignments can be fulfilled at any place and time, using, for example, tablets. This creates the illusion of constant presence of a foreign language in the life of students and creates the opportunity to engage in a foreign language on a daily basis, which definitely leads to success. When fulfilling the assignments, you can use time restrictions, which provides the opportunity of using the language at a natural pace. It is especially good to use this model for training grammar, vocabulary, developing listening skills. You may also include Cultural and Regional Studies into the Foreign Language course.

A special role is played by non-promotional materials on the Internet, which actually create samples of professionally oriented situations while using a foreign language (information retrieval, viewing of information channels, business correspondence). The use of didactic materials creates various possibilities for training grammar, vocabulary, and presentation of regional information of various kinds. The use of mobile learning increases the motivation of students and creates the basis for maximum success.

The concept of adaptive learning is related to mobile learning and implies the adaptation of the pace of the course, the material itself and the ways of its submission to specific training objectives and standards set competencies. The interest of students, their abilities and abilities play an important role in the definition of training strategies. The goal is to optimize the learning process, an attempt to overcome the under load or overload of students (Mukherjee, 2013). Therefore, the application of certain student autonomy is a prerequisite for the success of a foreign language course. The adaptive learning model can be regarded as the similar one to flipped learning. The basis of this model is the adaptation of tasks for each student or a group of students according to the level of their abilities. The individual approach to the course construction allows avoiding underloading pupils with good results and overloading the weak ones. As a result, the motivation increases, and the autonomy of students are being developed. This model is particularly effective while making grammar corrections and grammatical material study.

The model of collaborative learning - learning in blogs, chat rooms, and social networks — has become widely spread in recent years (Barkley, Claire, Cross, 2014). This type of learning requires much of the teacher's time being spent on communication and is hardly justifiable. It is believed that such model develops social competencies of students, but according to our estimates, MSU students do not lack such competencies, rather, on the contrary, the propensity to constant net communication prevents them from concentrating on the actual language models' reproduction.

Within these terms the Game-Based-Learning model deserves special attention as implicit learning always involves great interest of students and increases motivation (Bransford, Brown, Cocking, 2000). At the same time, the disadvantage of the model in question as it deals with great, sometimes unjustifiable, efforts from the teacher concerning with creation or adaptation of games. As the most effective games actively used in the process of language learning at Moscow State University one can name debates or discussions concerning a certain subject (topic).

To formulate the competencies declared in the university standard, it is necessary not only to have a certain command of a foreign language at a particular level, to automate the necessary skills and the ability to develop them independently, but also to form non-linguistic skills, such as the ability to search for information, to adapt the received volume of information to the declared format, to present information both orally and in the writing form, the ability to state one's position correctly. Brief presentations, public presentations in the format of a scientific report (for universities), discussions (prepared) and debates (unprepared) are the most appropriate forms for the development of these non-linguistic skills. The sphere of topicalization should always be connected with the future professional activity.

## Conclusion

The universal competencies of the university graduate and the professional competencies of non-philological faculty graduates dealing with the need to change not only methods of teaching, but also the methods of control and criteria for evaluating results, which is also the subject for our further investigation. The most promising method of teaching a foreign language is a communicative method, including comments and explanations of the language system and function, with the obligatory use of flipped learning, mobile learning and adaptive learning. The following criteria for evaluating the results can be proposed: the solution of practical professional problems, which primarily assess both linguistic and non-linguistic components such as content, present ability of the material being demonstrated, logical presentation, natural rate of speech and ease of perception for the listener or reader. Language errors are assessed as one of the components of the overall assessment as a whole. You can use these types of tasks for the final or intermediate control: give a presentation (collect the material by yourself and present it in the correct form), participate in the discussion on the given topic (prepare materials, develop your point of view, collect the necessary arguments, correctly and consistently submit your point of view), write an essay on a given subject for those samples that are commonly used in the future profession of the graduate. Such control is as close as possible to practice and will help determine the formation of professional competencies.

Thus, while taking into consideration the neuro-linguistic concept of the Moscow Psychological School as the basis of construction in the foreign language teaching process, what should be the ratio of analytical (the left hemisphere of the brain) and creative (the right hemisphere of the brain) elements, arbitrary and involuntary attention, analysis of language and communication and how should they be correlated on each level of language proficiency.

To set and fulfil the task is undoubtedly complicated, because both the shortcomings of the traditional method as well as those of the communicative one is very well known to professionals. Apparently, in the future, it is necessary to develop a clear methodology for teaching foreign languages, focused on the competencies approach, based on the interaction of communicative and analytical approaches, with the application of modern neuro-linguistics achievements concerning the work of memory, attention and the priming effect, as well as the theory of speech generation created by the Moscow Psychological School.

Therefore, the basic principles of the convergence of new Russian foreign language programs for non-philological students and the Western standards can be the following:

1. Interaction of communicative and analytical (the analysis of language paradigms) teaching methods, depending on the competencies declared in the educational standards,
2. Integration of all the basic issues of modern neuro-linguistics and psychology - the theory of generating utterances, theory and experiments priming, the use of mechanisms of work of memory and attention,
3. The use of modern approaches such as mobile learning, adaptive learning, flipped learning.

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## Review of the international experience upon professional preparation of teachers

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**Abstract:** The topicality of research is implementation of the innovative international experience of professional preparation of future teachers is an aim for modernization of the system of higher education. Improvement of the quality of human capacity and provision of future specialists with highly skilled workforce is possible only under the condition of integration in the global educational space. In this regard, the current stage of the reform of higher vocational school and the development of educational process in higher educational institutions (HEI) set new requirements for innovative update of its organization, content and methodic. **The aim of the research** is to identify the specific of directions in of professional preparation of future teachers on the base of the research of the international experience. The study of perspective systems and methodic in professional preparation future teachers are base of research methodology. Rapid increase in scientific and technological progress, integration into the global community, emergence of new information technologies sets increasingly demanding requirements for education. Higher education institution shall not only provide quality educational services, but also promote the formation of intellectual potential, restructuring economy and development of science-based production. Currently, professional preparation of teachers in universities are demand for a new results innovative education, integrated with intensive scientific research activity, interdisciplinary of education and scientific research, close connection of training with the consumers of industry and economy. Revealed concepts and provisions in the result of research will be the basis of implementation into the pedagogical process of higher education institutions.

**Keywords:** professional preparation, future teachers, international experience, sectoral training, university education.

### Introduction

The quality of higher education predetermines sustainable competitiveness of the country in the context of globalization. As the process of globalization, internationalization of the economy and business advances, higher education faces new topicality objectives – training of professional workforce able to operate effectively in changed market conditions. The aim of the article to give particular attention to the professional preparation of future teachers upon the research of international experience.

The problem of professional preparation of students – future teachers on the example of specialty of Vocational training, for light industry is a direct reflection of core aspects of the sector. Consequently, a number of remaining challenges appears background of the problem:

- lack of formed subject-oriented practical knowledge of the specificity of productive process (Burlson, 2005), model for the formation of a specialist with applied abilities (Rauhvargers, 2009);
- disunity of methodology, which results from the lack of the aim, idea, realization of the necessity and social significance of the outcome – education product (Rauhvargers, 2009).

“Science for the sector” – this idea is the central today in the formation of the strategy of a new specialists' training model in the system of education, forming human potential, which defines the economic potential of country to a crucial extent (Zhanguzhinova, Magauova, Nauryzbaeva, 2016).

Objectives of industrial-innovative development of economy necessitate the implementation of innovative methods and technologies of teaching in universities. The state has adopted a series of measures aimed at creating a network of science centers through the development of technology parks and business - incubators, which allow to integrate science and business; and to raise the quality of teaching in universities. (The state Program..., 2010).

The implementation of aims may positively affect into the organization of pedagogical process in HEI, as it promotes effective work in changing conditions of global market, namely:

- identifies the need to reconsider education paradigms, content of training programmes, modules, orienting towards global thinking and vision;
- forms professional preparation of future teachers in organization of training for competitiveness at the global labour market, as it suggests international context and content of studied disciplines at all levels of higher education;
- stimulates acquisition of the best foreign standards and directions of education, mechanisms of process in training of specialists, integration of sectoral innovations.

Identified modern conditions of professional preparation of future teachers influenced on the implementing international experience into the system of higher education. The purpose of article in improvement of the quality of human capacity and provision of with highly skilled workforce, able to operate effectively in changed market conditions, assimilation of the best foreign standards and technologies, is possible only under the condition of modernization of higher education and integration in the global educational space. *In this regard, the research problem defined is:* insufficient development of professional preparation of future teachers of Kazakhstan based upon the research of international experience that impedes the integration into the global educational space and requires the study of European experience.

**The aim of the research** is to identify the specific of directions in of professional preparation of future teachers on the base of the research of the international experience.

### Methodology

The question of research is: what mechanisms and directions of professional preparation of specialists are actual in educational process? The current stage of reformation of higher professional school, development of educational process in higher education imposes entirely new requirements for innovative renewal of its organization, content and methodology. This is review article, which aims to study and analyse the international experience of professional preparation of future teachers in universities and theoretical generalization of main mechanisms and directions. Participants of this research are students – future teachers, bachelors at 1-4 year at universities from Great Britain and France. Methods of research are analysis and synthesis. The procedure carried out on revealing types of professional preparation of future teachers with two different directions of HEI and their self-mechanisms.

### Results and Discussion

The research of the problems of professional preparation of teachers on the base of international experience revealed two directions in Formation of Professional competence (FPC) on “methodic” and on the “system” (Zhanguzhinova, 2017), what allowed to determine:

- “methodic” – based on a decentralized approach in USA and UK with passing exams and issuing certificates, confirming the level of competence (Kennedy, Ahn, Choi, 2008; Darling-Hammond et al., 2012) (Table 1);
- “system” – centralized training with practically oriented goals, (state order) in Germany, France, Denmark, Portugal, Switzerland, Netherlands, Latvia, Spain, Finland, Belgium, Norway, Kazakhstan, Russia, Kyrgyzstan with Fulfillment of state orders on the basis of a holistic pedagogical process (Daniela et al., 2014; Halbe, Adamowski, Pahl–Wostl, 2015; Zhanguzhinova, Magauova, Nauryzbaeva, 2016; Rauhvargers, 2009) (Table 2).

The theories presented above allowed to reveal on the base of research the international experience on professional preparation the dependence on defining functional responsibilities of future teachers, on the basis of content and methods; existence of a uniform electronic base on ratings and data base; professional orientation; competitive examination; professional qualification level listing. Therefore, according to analysis of international experience on professional preparation of future teachers, the conclusions are the following:

- necessity of pedagogical interaction of best European experience in professional preparation of future teachers and modernization of the pedagogical processes in education, determined by Bologna declaration, such as:
  - strengthening of international competitiveness in higher education and research;
  - active participation in the integration of European higher education;

- raising the quality of education and research through the participation of students and teachers in the international process of knowledge sharing;
- diversification of the directions of supply of educational services;
- accessibility of higher education; universalization knowledge;
- the expansion of curricula and training of students in foreign partner universities;
- trans-boundary education;
- development of flexible system of requirements, training trajectory, forms of work for implementation of institutional reforms in higher educational institutions on the basis of dynamic links;
- increased opportunities of Modular training with application of innovative methodic for professional realization of competent specialists in further labour activity on the basis of dynamic links;
- development of the assessment Criteria of the Formation of Professional competence.

Table 1

### Types of professional preparation of future teachers in Great Britain

Nomination	Description of types of professional preparation of future teachers in Great Britain	Application in the research
Functional approach	Performing work in accordance with a certain professional standard, with a characteristic desire for greater integrity and functionality by integrating knowledge, understanding, values and skills, demonstrating abilities, determines the professional preparation of teachers in the UK. In the procedure for assessing each competency, sub-levels are allocated, and for each sub-level, in turn, specific performance criteria are defined (Atkinson, 2004).	The subject-practical approach to the FPC is a consequence of the systematicity, technological effectiveness in the professional training of teachers
The main specialized professional association	The presence of a single electronic database, in which educational institutions are obliged to make data on specialists who have received training or professional preparation with the award of qualifications. The educational institution interested in conducting training in accordance with certain qualification requirements, it is necessary to fulfill a number of mandatory conditions. The university must be in the special register of educational institutions of Great Britain and, accordingly, have a registration number. Conducts inspection of the university, on the basis of the developed qualification requirements, accredits educational institutions according to approved requirements (Harris, Sass, 2012).	Systematicity, technological effectiveness, livelong of processes of professional preparation creates prerequisites for motivation and FPC in the professional future teachers
Certificate PGCE	PGCE – Postgraduate Certificate in Education – Training is provided in the technical colleges of colleges (Colleges for Technical Teachers) of artistic and pedagogical (Art Training Colleges) and pedagogical departments of universities. In schools an obligatory condition for obtaining a qualification in the specialty is 15–32 weeks of practice after 3–4 years of basic education at a university (Mukhametkaliev, 2011).	A subject-practical approach to the activities of future teachers is facilitated by the FPC
Certificate QTS	QTS – Qualified Teacher Status – includes a contractual training scheme for teachers; scheme of licensed training of teachers; a special scheme for the training of teachers who have received pedagogical training in countries that are not members of the European Community; school centres for the initial teacher training (open according to the Law of Education of 1994) (Gough, Scott, 2003).	Variability in the FPC creates prerequisites for motivation and intellectual-cognitive self-development

Table 2

**Types of professional preparation of future teachers in France**

<b>Nomination</b>	<b>Description of types of professional preparation of future teachers in France</b>	<b>Application in the research</b>
Certification	To confirm their professional competence and the ability to teach in a certain field, teachers need to pass a competitive examination, which results in the issuance of a state certificate for the fields of teaching (Rychen, Tiana-Ferrer, 2004)	Systematicity stimulates self-development and FPC of future teachers
Tests system	Careful selection of candidates through testing, analysis and interview (Rauhvargers, 2009)	Technological effectiveness stimulates the FPC of future teachers
Retraining "school – enterprise"	Training is carried out in vocational training centers, where students obtain the theoretical course, combining it with practice in the enterprise. Professional training can be carried out at the enterprise, without paying salaries to students. Alternating vocational training (also under contract with the enterprise) involves the internship of interns who have already received a special education for the purpose of specialization or pro-orientation. In this case, trainees receive a salary (Stoof et al., 2002)	The subject-practical approach contributes to the FPC in the activities of future teachers
Lifelong education	Concerning workers who raise their qualifications without interruption or with separation from production, is carried out without coordination with state bodies at the expense of enterprise funds and tax from workers. There is such kind of professional training as an internship at an industrial enterprise. It is foreseen for both students at different stages of education in HEI, and for graduates (Daniela et al., 2014; Rychen, Tiana-Ferrer, 2004).	The subject-practical approach contributes to the continuity of the FPC in the work of future teachers
Partnership of enterprises and educational institutions	Integration of all partners involved in the training process, including trainees, at all stages, beginning with the distribution of responsibilities (the enterprise outlines goals, and training institutions offering training courses offer ways to achieve them); mutual information of the personnel; mutual responsibility, including students; attestation of teaching staff; cooperation on conditions of competition (Stoof et al., 2002).	Communicativeness in the FPC stimulates technological effectiveness, self-development in professional activity
Differentiated multilevel system	Type of vocational guidance in pre-professional education, implemented in school. Profiling, differentiation and deep general education. There is a tendency for gradual expansion and deepening of general education as a basis for further specialization (Rauhvargers, 2009).	Technological effectiveness in the FPC of future teachers
Nomenclature of levels of professional classification	The existing types of training specialists are interrelated and unambiguously correlated with the nomenclature of the levels of professional classification, which allows solving the problems of employment, tariffs and labor remuneration of trained specialists, taking into account the changing demand and new requirements for employees (Rychen, Tiana-Ferrer, 2004).	Systematicity and technological effectiveness in FPC of future teachers

To stimulate the process of professional preparation of future teachers on the example of specialty of Vocational training in universities, in our opinion, it is necessary to reorient the process of preparation from the creative-empirical to the applied-subject, in line with contemporary technological innovation and market demands.

Strengthen the teaching of computer-oriented, creative-technology and commerce forming disciplines to create the conditions for the implementation of exchange projects with real projects for industrial needs.

To do this, HEI need to create conditions for the work of students in this prospective way:

- expand cooperation with vendors. Vendor (vendor, the vendor) - company supplier of products and services under its own brand name (often manufacturer). Vendor is a company that produces, supplies its products under its own promoted trademark. The vendor takes the top place in the marketing channel. In modern commerce: producer - vendor - distributor - dealer - customer. Vendors are not always the producers of goods and services. Key activities in the vendor are ownership and management of the brand promotion and distribution of goods and services;
- expand cooperation with major international companies;
- establish cooperation with the "Centers of competence and certification of professional development and advanced training";
- implement creative ideas and realize them in the learning process at the university based on commercialized proposals from the production;
- to contribute to the committed involvement of enterprises in the employment of students.

The professional preparation of future teachers of some European countries on the example of Latvia as a system-based direction, is a part of implementation of innovative international experience in pedagogical process. The education system of Latvia focused on training in two areas: academic and professional (Bertaitis, Briede, Peks, 2011). Professional education gives the graduate qualification, experience in some specialties and sector training.

The duration of training for the specialty in high school is significantly shorter (from 2.5 to 4 years) due to the two-tier system of higher education and the reduction of non-core subjects in the curriculum. The number of credits allocated to the practice is in the range from thirty-nine to forty-five credits ECTS.

State Education Development Agency of Latvia initiated reform of professional education dated 06.27.2015. European Social Fund project implemented "Creation of branch system of professional qualifications and improvement of professional training efficiency and quality".

The implementation of the project involved: the tripartite National Council for Co-operation, including teachers' council on professional training and employment, which works in close cooperation with the Latvian Employers' Confederation, the Ministry of Education and Science, Ministry of Welfare, Ministry of Economy, Ministry of Environment, the Union of Local governments, free Trade Union of Latvia.

*The project aim* is to improve the system of ensuring the content of professional education, functioning continuously in accordance with the needs of industries.

*Objectives of the Project:*

- creation of twelve expert councils in the economy sectors (just twelve for Tourism, textiles, construction, electronics);
- conducting of fourteen researches in sectors of the national economy and the creation of a professional structure for each industry (main profession, specialization, related profession);
- creation of a national qualifications framework in accordance with the European Qualification Framework structure;
- the development of new occupational professional standards or updating existing ones;
- building a new flexible modular program based on competencies and learning outcomes;
- the content of qualifying examinations; alternative methods;
- creation of a system of competences recognition acquired through informal way (Cedefop, 2015).

The research of the examples on the international experience on professional preparation of future teachers for innovative sectors, it is necessary:

- research projects had applied nature (Daniela et al., 2014);
- HEI must meet the needs of business (Bertaitis, Briede, Peks, 2011);
- all projects with scientific orientation should be implemented into practice (Xakellis et al., 2004).

One of the system solutions of the educational problem is the empowerment of the Dual training as a professional activity of future specialists is associated with object-practical application of their skills. For students it is an adaptation of the graduates to the real production conditions and high probability of successful employment within the specialty after graduation. For the enterprise, it is an opportunity to prepare HR for them, reduce costs, provided on the search and selection of employees, their retraining and adaptation.

According to Zhanguzhinova, another key factor as a system-based direction in the modernization of the system of training is an advantage of the credit system in higher educational institutions of Kazakhstan: the formation of modular educational programs, promotion of Academic Mobility opportunities, ECTS, strengthening of scientific and research activity of students, because the root of the problem is inadequate training of specialists of the educational springboard (Zhanguzhinova, 2017).

## Conclusion

Thus, the study of international and blight experience of countries on methodic-based direction on the example of Great Britain the result of many years of scientific research, allow us to formulate the following positive mechanisms for the formation of social and sought-after experts in the field of light industry in the conditions of modernization of production technologies:

- a wide range of various forms of improvement and confirmation of experts' professional competence creates a mechanism for licensing and certification, with a centralized national institution - Industry Certification organization.
- the ratio of the results of advanced training and self-education with wages of teachers and social benefits package;
- own development strategies of sector institutions: conditioned by their own method of teaching and the payment system; practice-activity-related project work on orders that have a social, national significance;
- opportunities for international cooperation associated with a large set of entrants' coverage and marketing of educational services, staff advanced training.

At the same time, the advantages of the professional preparation of future teachers on the system-based direction on the example of France for innovative sectors compared with foreign countries revealed mechanisms, namely:

- centralized training system of specialists for system-based direction in preparation of specialists, conditioned by the framework of a unified state education standards, makes it possible to direct its activities more efficiently and implement consistently in the life of modern achievements of science and best practices;
- modernization will be the development and implementation of criterion evaluation apparatus, profессиogram, innovative technologies, methods of training of teachers;
- material and practical orientation of training, built on the basis of the decision of problems of the design course, modular system, facilitating the relationship of the educational process with production and needs of society on the basis of the social order of society by professional preparation of teachers;
- the effectiveness of individually-oriented and subject-active approach to Vocational training specialization, stimulating the quality of training of teachers for the innovative sectors;
- the starting point for the formation of the product in the educational chain - specialists for cluster of innovative sector of production;
- for professional preparation of teachers for innovative sector following schemes of interaction between science and business are the most effective: Expert evaluations; Grants and orders; Investments in research start up; Opening of research laboratories and business incubators; Innovative entrepreneurship; Interaction with venture capital funds, venture capital;
- according to the conceptual ideas of our research, particular importance has the accounting of dynamics of the qualification requirements for the preparation of competitive professionals on the international market for innovative sector considering new requirements of innovation and industrial development of society.

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## The Study of Student's Motivation for Future Professional Activity

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**Abstract:** In the process of globalization, internationalization of the economy and business advances, higher education faces new tasks – development of motivation of students for future professional activity. The topicality of the research reveals *the motivation of students is consider as an intellectual value, able to increase human capital*. The aim of development of student's motivation during the process of professional preparation in higher educational institutions is on implementation of acquired knowledge, skills and attitude in professional activity in changing conditions of economy. Modern production's sectors require from students *the ability to ensure competitiveness of products and services, be highly qualified and independent in realization and improvement of their own professional competence*. The methodology of the issue of the development of motivation of students based on theoretical methods, data collection methods, data processing methods in SPSS, conditioned by *crucial economic, social, scientific significance for facilitating actualization of pedagogical potential*. It forms *the need in training of competent specialists, demanded in the conditions of modernization and innovative development of society*. The results of the research are reflecting on the dynamics development of motivation of students and in comparative analysis, based on Kruskal – Wallis test among respondents (students, teachers, employers). The *disclosure of results allows to reveal significance of research based on the Criteria and results of descriptive statistics (mean) for identification of the dynamics of indicators of motivational criterion for generalization practical recommendations on modernization professional preparation of students on specialization in HEI*.

**Keywords:** motivation, students, professional activity, professional preparation, competence, university education.

### Introduction

Consideration of the problem of development of motivation of students for future professional activity is on the base of professional preparation of specialists on Design, on specialization Clothing design. Background of the problem is in requirements of modern productions, which are focused on multidisciplinary specialists, able to solve a wide range of tasks on the basis of universal competencies.

The topicality of research is in study students' motivation for future professional activity. Analysing the definition Index of creativity, in our opinion, a modern fashion designer should be able to and know everything – it is necessary need to stimulate future fashion designers to learn to work in the production of clothing hot couture and clothing for special purposes (Danilane, Lubkina, Lubkins, 2007), from hats, accessories in the sphere make up, buyer (Holmes, 2013), image maker (Seo, 2009), as well as navigate in the design environment (Zhanguzhinova, Magauova, Nauryzbaeva, 2016). It is necessary to raise the level of art-graphic, spatial and volumetric, structural and technological knowledge (Rauhvargers, 2009). Raising the issue of the problem of fashion designer students' preparation in higher education, today, we should expand the boundaries of narrow profile specialty autonomy because of globalization in all spheres of socio-economic relations has resulted in the development of new technologies (Freeman, 2002). The aim of the article in construction of new paths of higher education in the training of specialists in the field of fashion design. The stated purpose can allow to develop students' project-oriented strategic thinking, rather than the skills of applied artisans.

Currently, artistic specialties produce professional artists, with a various special differentiation. When graduates getting into the society, they cannot adapt because of insufficient preparation for the "harsh realities" of modern life. In the process of obtaining one-sided highly specialized development for four to five years of study at the university, an empirical vacuum is formed unconsciously. Conventionally, this process can be compared to the artificial conditions, getting into the real environment, alumni are not always able to adapt in profession due to lack of systematic skills.

The purpose of the formation of socially-demanded expert in the conditions of higher educational institutions (HEI) today is the formation of a new model of the designer, with the attitude of the local cultural traditions and the new economic areas and an interdisciplinary design. The specifics of creating the conditions for the modernization of the educational process of specialization Fashion Design, is the close relationship of structuring scientific-theoretical basis with analysis of the modernization of the production process in the new economic conditions of society. *In this regard, the research problem is defined as* insufficient development of criteria for motivating students in the specialty Fashion design.

*The research object is* motivation of students.

*The subject of the study is* the development of the criteria for motivating students for future professional activity.

*The aim of the research is* determination of requirements for development motivation of students for future professional activity.

### Methodology

The research of the international experience on professional preparation of students on specialization Clothing design revealed hypothesis of the investigation, that motivation stimulates students to assessment of competence on the base of knowledge, skills and attitude, which forming personal need in improving interest in specialty through the opportunity of choice of *direction of education* through mechanisms of *organization of training* influenced by *sectoral innovations* and *education paradigm*, based on modernization of *education standard*.

The study started in 2008 in Kazakhstan and finished in Latvia in 2018. The number of respondents 137 third year students on specialization Closing design, 26 teachers and 22 employers: students, teachers, employers of countries: Kazakhstan, Latvia, Lithuania, Great Britain.

The experiment results and the dynamics of student's motivation development for future professional activity were held two questionnaire stages: ascertaining and controlling (Table 1).

Table 1

Questionnaire stages

Stages	Questionnaire stage content
<b>Ascertaining stage</b>	Carried out among 107 students of the 3rd study year (control and experimental group) from five higher education institutions of Kazakhstan, with the aim to detect levels of formedness of motivation at the ascertaining stage of the experiment.
<b>Controlling stage</b>	Carried out among 185 respondents divided in three groups: students, teachers, employers in countries: Kazakhstan, Latvia, Lithuania, Great Britain, with the aim to trace the dynamics of the motivation in different settings of phased motivation.

Carried out ascertaining stage allowed to identify initial preparation of enrolees. Integration of the proposed motivation criteria into the research, based on the Methodic on the Formation of Professional competence, will allow to identify the effectiveness of professional preparation process of students in specialization of Clothing design, according to the results of two conducted survey stages.

#### Research methods

- *Theoretical methods:* analysis of scientific literature; analysis of normative documents.
- *Data collection methods:* questionnaires (for students, teachers, employers).
- *Data processing methods in SPSS:* descriptive statistics (mean); Kruskal – Wallis test; Wilcoxon test; Mann – Whitney U – test; Kendall Tau b test.

The development of cognitive and social motives is set as the foundation of awareness of the importance of profession (Curzon, 2009). Students' self-expression defines motives, which revealed on the base of development of the creativity in organization of training (Freeman, 2002). Many European schools of design, in particular in the British education system are focused on students' self-education and self-learning. This methodology provides a productive result in cognitive activities, the formation of motivation in self-development and education of students.

The stimulation of interest towards the development of social characteristics of a personality provide professional communicativeness (Holmes, 2013; Cohen, Manion, Morrison, 2007) forms the desire of students to achieve success in activity (Adubra, 2014), based on sectoral innovations. For example, the program of Cincinnati University (USA), academic training in classrooms and studios are combined with industrial practice (Seo, 2009). As a rule, students work out in a design firm or corporation for one out of the three semesters. This program provides students with a sense of personal confidence and maturity, which incorporates social and practical experience.

Development of motives is based on methodology, which influences the mechanisms of the process of professional preparation on the basis of education standard (Curzon, 2009). The level of Professional competence formedness depends on the typology of motives based on education paradigm (Zhanguzhinova, Magauova, Nauryzbaeva, 2016).

Updating the content of Design education should be approached as to form of motivational attitude to the subject of activity, which is expressed in the category of responsibility to create an environment. In the process of teaching S.D. Seo (2009) offers to students-designers to realize the concept of "man - design - environment", which is regarded as a detailed design program covering three main areas of activity: the formation of motivational attitude and consciousness, the development of practical skills (Seo, 2009). Necessity of successful fulfilment of set tasks defines the motives (Danilane, Lubkina, Lubkins, 2007) through self-development, which define adequate assessment system (Creswell, 2014). On the basis of the theoretical research, presented above the Methodic of Formation the Professional Competence of the students in specialization of Clothing Design was developed, what allowed to reveal indicators of Motivational criterion (Table 2).

Table 2

**Motivational criterion**

<b>№</b>	<b>Indicator name</b>
1.	<i>Interest in specialty</i> Depends on students' personality motivation, develops interest in specialty, forms the prestige in professional environment.
2.	<i>Gnoseological need in raising the level of self-education, qualification</i> Development of natural, psychological, moral instincts of a personality stimulates the need in widening the horizon, raising of social status of a specialist.
3.	<i>Awareness of the importance of profession</i> Students' understanding of the importance of profession in further professional activity and development of active life attitude of future teacher in design
4.	<i>Creativity</i> Synthesis of internal psychological state with external creative expression forms the expression of author's signature – style, project and style preferences, work forms and techniques, based on creative growth, self-realization ideas.
5.	<i>Social characteristics of a personality</i> Development of professional, personal qualities of students, based on moral psychological satisfaction with a completed project/order or material reward for the labour, adequate creative activity assessment system.
6.	<i>Communicativeness</i> Is expresses as an awareness of the necessity to broaden the area of professional interests, communication spheres, social status, understanding of specificity of project-oriented pedagogical process in the segment of social services that provides the services for the needs of society, production sectors, clusters.
7.	<i>Adequate assessment system</i> Ability of a person to sensibly assess activity processes on the basis of the parameters: experience, comparative analysis based on induction and deduction. Expressed as an orientation of a specialist in the specificity of profession, possession of analytical assessment apparatus, formed by a broad spectrum of knowledge and professional growth, practical work experience, communicative characteristics of a personality – skills to compare personal achievements with the level of preparedness of other persons.

The research of theories revealed, that the introduction of the indicators of Motivational criterion in professional preparation of students in HEI can help to reveal problems and their solutions through dynamic links of Methodic of Formation of Professional competence:

- “sectoral innovations” in education;
- “education standard” of professional preparation in HEI;
- “education paradigm” in training of specialists;
- “mechanisms of process” of pedagogical process;
- “direction of education” in HEI;
- “organization of training” in pedagogical process.

## Results and Discussion

For a better representation of dynamics and contentive description by the basic statistical indicators, descriptive statistics (mean) were applied. The results of two questionnaire stages are systematized in Excel programme and processed in SPSS programme. The analysis is conducted on motivational criteria.

Using the results of statistical analysis with all seven motivational criterion indicators, consequent positive dynamics (Figure 1), (Table 3) and dependence on dynamic links is identified:

- interest in the specialty; dynamic link No.5 – direction of education;
- gnoseological need in raising the level of self-education, qualification; dynamic link No.2 – education standard;
- awareness of the importance of profession; dynamic link No.1 – sectoral innovations;
- creativity; dynamic link No.1 – sectoral innovations;
- social characteristics of a personality; dynamic link No.3 – education paradigm;
- communicativeness; dynamic link No.3 – education paradigm;
- adequate assessment system; dynamic link No.6 – organization of training.

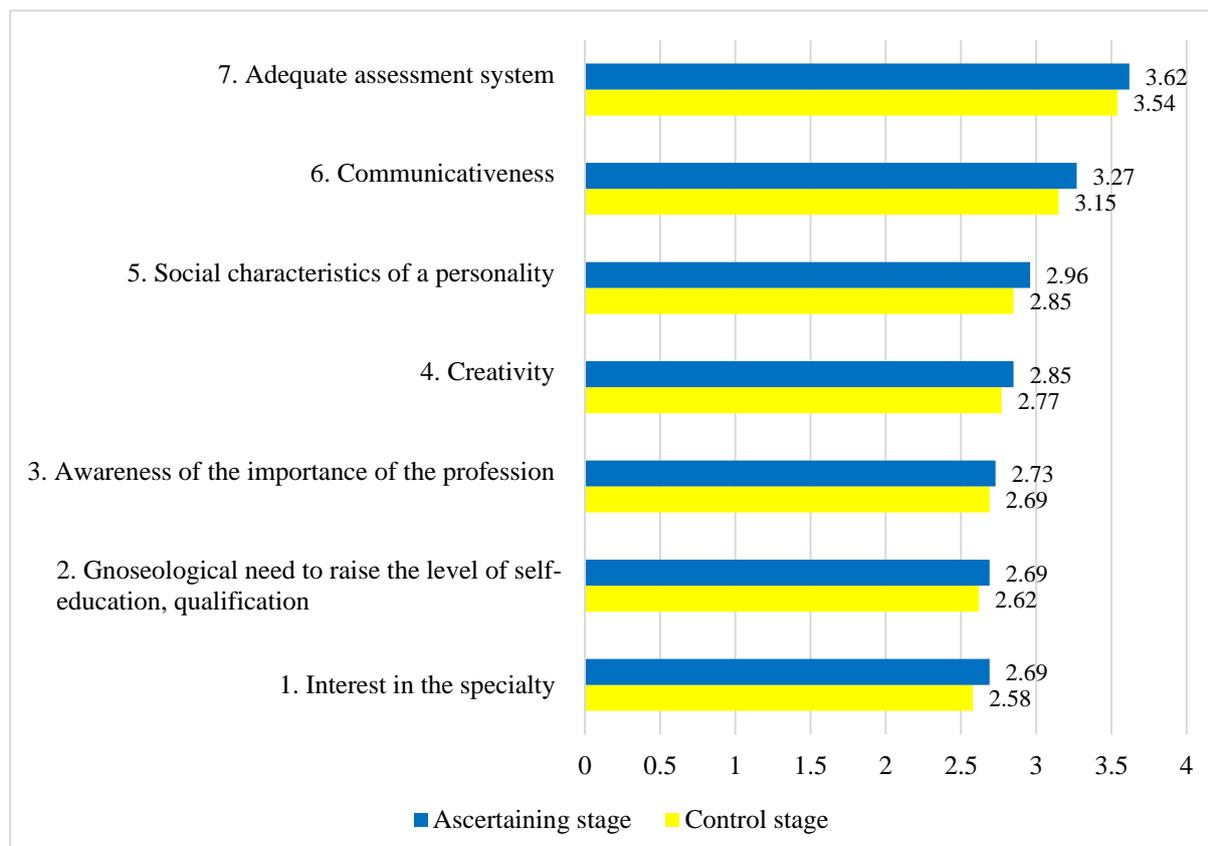


Figure 1. Dynamics of the indicator of motivational criteria.

Table 3

**The results of descriptive statistics (mean) for identification of the dynamics of indicators of motivational criterion (n=26)**

Code	Indicators of motivational criterion	Mean
MLK1_1	Interest in the specialty	2,69
MLK1_2	Interest in the specialty	2,58
MLK2_1	Gnoseological need to raise the level of self-education, qualification	2,69
MLK2_2	Gnoseological need to raise the level of self-education, qualification	2,62
MLK3_1	Awareness of the importance of the profession	2,73
MLK3_2	Awareness of the importance of the profession	2,69
MLK4_1	Creativity	2,85
MLK4_2	Creativity	2,77
MLK5_1	Social characteristics of a personality	2,96
MLK5_2	Social characteristics of a personality	2,85
MLK6_1	Communicativeness	3,27
MLK6_2	Communicativeness	3,15
MLK7_1	Adequate assessment system	3,62
MLK7_2	Adequate assessment system	3,54

The analysis of motivational criterion is provided below (Table 4). The comparative analysis, based on Kruskal – Wallis test, showed that, according to the respondents (students, teachers, employers):

- statistically maximum significant differences are identified in the following indicators of motivational criterion: *creativity* ( $p=0.000$ ); *social characteristics of a personality* ( $p=0.001$ ); *communicativeness* ( $p=0.000$ );
- statistically very significant differences in the criterion indicator: *interest in the specialty* (0.009);
- statistically significant differences in the criterion indicator: *awareness of the importance of profession* (0.025).

Table 4

**Statistical significance of differences of motivational criterion indicators among the respondents (students, teachers, employers) of different countries**

Code	Indicators of the assessment criteria	p	Highest score (Mean Rank)	Respondents	Lowest score (Mean Rank)	Respondents
MLK1	Interest in the specialty	0.009	46.79	students	67.91	employers
MLK3	Awareness of the importance of profession	0.025	46.75	students	66.07	employers
MLK4	Creativity	0.000	43.22	students	75.80	employers
MLK 5	Social characteristics of a personality	0.001	44.48	students	72.32	employers
MLK 6	Communicativeness	0.000	38.28	students	69.42	teachers

Creativity, according to the students, has the highest score (Mean Rank 43.22), while the employers identified the lowest score (Mean Rank 75.80). It shows that the students highly value their Professional competence and are independent in the expression of their creative potential, use variable methods (Creswell, 2014), approaches, principles, professional conditions in the types professionally-pedagogical activity for lifelong professional self-development. The employers assessed creative potential of students sceptically.

Students have the highest score (Mean Rank 38.28) of communicativeness, while with the lowest score is identified among the teachers (Mean Rank 69.42), which shows that a search for new professional

contacts, people with similar interests, exchange of opinions, creative ideas, acquiring of new circle of like-minded fellows, potential environment for further professional development and employment is important for the students. It is related to the professional need in competence development, based on the exchange of knowledge, skills, attitude. The teachers assessed the communicativeness of students lower.

Social characteristics of a personality have the highest score among the students (Mean Rank 44.48), while the employers identified the lowest score (Mean Rank 72.32). It indicates that the expression of personal attitude and responsibility during the application of Personal competence at all design stages and in all types of professionally-pedagogical activity is important for the students. According to the employers' opinion, it characterizes students' weak expression of social characteristics of a personality in Professional competence during the conduction of professionally-pedagogical activity.

Interest in the specialty has the highest score among the students (Mean Rank 46.79), while the employers identified the lowest score (Mean Rank 67.91). It shows that interested, motivated attitude towards the specialty is important for the students, promoting professional lifelong intellectually cognitive self-development, variability, activity, development of creative potential. The employers defined weak motivated attitude of students towards the specialty, which does not form the interest.

Awareness of the importance of profession has the highest score among the students (Mean Rank 46.75), while the employers identified the lowest score (Mean Rank 66.07). It characterizes students' conscious awareness of the realization of acquired knowledge, skills, attitude, which promote all processes in the further professionally-pedagogical activity. According the employers, it defines a weak motivated attitude of students towards the specialty.

According to the results of the second questionnaire, the effectiveness of the implementation of the Methodic on the basis of Modular education programme is identified among the respondents (students, teachers, employers) on the following indicators of motivational criterion: gnoseological need in raising of the level of self-education, qualification; adequate assessment system. It identified the dependence on regularity of content goal and dynamic links: education standard, organization of training.

Based on Kruskal – Wallis test, the comparative analysis of the indicators of motivational criterion among the respondents (students, teachers, employers) identified the lowest score in: interest in the specialty; awareness of the importance of profession; creativity; social characteristics of a personality; communicativeness. It identified vulnerability in dynamic links: sectoral innovations, sectoral innovations, education paradigm, education paradigm.

In the pilot experimental research, a correlational analysis based on Kendall Tau b test was carried out on the indicators of the Criteria for the assessment of the Formation of Professional competence.

Correlation, which indicates an average interrelation, is identified between:

- interest in the specialty and design content knowledge as a subject of pedagogical process ( $r=0.512$ );
- gnoseological need in raising the level of self-education, qualification and design content knowledge as a subject of pedagogical process ( $r=0.518$ );
- social characteristics of a personality and communicativeness ( $r=0.505$ ).

Therefore, the correlation identified the dependence on dynamic link: direction of education, education standard, education paradigm.

## Conclusions

On the basis of the research and the comparative results analysis of the student's questionnaire indicators, based on Kruskal – Wallis test, statistical significance of differences is identified: in motivational criterion – awareness of the importance of profession, interest in the specialty, adequate assessment system. The effectiveness of the implementation of the Methodic on the basis of Modular education programme is identified among the students from Kazakhstan on the indicators of motivational criterion: gnoseological need in raising the level of self-education, qualification; creativity; social characteristics of a personality; communicativeness.

Based on the comparative analysis of the indicators of the Criteria of the formation of Professional competence within the questionnaire of the teachers, based on Kruskal – Wallis test, statistical significance of differences is identifies: in motivational criterion – the effectiveness of the

implementation of the Methodic on the basis of Modular education programme is identified among the teachers from Kazakhstan on the indicators: gnoseological need in raising the level of self-education, qualification; creativity; social characteristics of a personality; communicativeness, adequate assessment system. As well as the lowest scores identified by the teachers from Kazakhstan: in interest in the specialty; in awareness of the importance of profession.

Based on the results of the questionnaire of students, teachers, employers and Kruskal – Wallis test comparative analysis of the indicators of the Criteria for the formation of Professional competence, statistical significance of differences is identified: in motivational criterion, the effectiveness of the implementation of the Methodic on the basis of Modular education programme is identified on the indicators of the questionnaires of students, teachers, employers: *gnoseological need in raising the level of self-education, qualification; adequate assessment system.*

However, they assessed students' interest in the specialty and awareness of the importance of profession, communicativeness as low. The lowest scores of motivational criteria are identified in: interest in the specialty; awareness of the importance of profession, dependent on vulnerability of dynamic link: direction of education, sectoral innovations, education paradigm. It characterizes low motivation of students in development of *communicativeness*, which allow to broaden the search for new professional contacts, people with similar interests, exchange of opinions, creative ideas, acquiring of new circle of like-minded fellow, potential environment for further professional development and employment. It is related to low professional need in the development of competencies, based on the exchange of knowledge, skills, attitude.

For the development of student's motivation for future professional activity necessary reconsideration of the professional preparation of students on specialization Clothing design in Kazakhstan's HEI. According to the provided research, the hypothesis was confirmed, what allow to reveal the following recommendations:

- to make additions to the normative framework (The State Compulsory Educational Standard of the Republic of Kazakhstan, Working curriculum, Working training programme) on the modernization of the approaches in training in HEI into the dynamic links “**education standard**” in preparation of specialists, what allow to influence into the “**education paradigm**”;
- the creation of the opportunity of self-sustained students' choice of training trajectory in HEI (according to the principles of Bologna declaration, students have the right to plan their training individually) in dynamic link “**direction of education**” can modernize “**organization of training**” on implementation of the forms of work for the adjustment of the organization of the process of the Formation of Professional competence;
- to make changes and additions into the dynamic link “**sectoral innovations**” in education:
  - in the aims and the content of theoretical preparation and practice on the basis of sectoral innovations in education for the realization of all competence types;
  - in the assessment of competencies on the basis of proposed motivational criteria for formation of the prestige of profession;
  - in content of the education programmes, which increase the scope for the acquisition of subject-oriented knowledge, skills, attitude and subject-oriented practical and profile orientation of preparation;
- to organize the pedagogical interaction of students, teachers, employers for the effectiveness of institutional education reforms in Kazakhstan on the basis of Bologna declaration;
- to create of flexible conditions for international academic mobility and planning of the content of education for sectoral needs in realization the Formation of Professional competence in educational and productive processes.

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## Error Types in the Learner Corpus of the Second Baltic Language

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**Abstract:** Errors in language learning are seen as normal and even necessary. However, researching them is often undermined by the need for a clear definition what is or should be considered an error and by the lack of an error taxonomy. This paper shortly discusses the notion of error in various contexts, especially in learner corpora research. Then it offers an error taxonomy that was created for error-tagging a learner corpus of Baltic languages. The aim of the study is to create a taxonomy that is suitable for annotating beginner texts of Latvian and Lithuanian, and efficient in use. The taxonomy is based on the previous work of S. Granger who identified error types for a learner corpus of French. These error types are reviewed, modified and/or replaced where necessary in order to match the structure of Latvian and Lithuanian languages. 5 error types (form; morphology and word-formation; syntax; vocabulary; punctuation) with 29 subtypes are distinguished. Those are described in the article along with examples from the corpus. The taxonomy is now being used for annotation the learner corpus of the second Baltic language which provides researchers with valuable material on language learning outcomes.

**Keywords:** university education, Baltic languages, errors, learner corpus.

### Introduction

One of the most prevalent characteristics of language learners' production of the target language is it having errors. Errors are also often considered when analysing learner-produced language, but not all researchers agree on the notion of error. Some divide all problematic uses of language into *slips*, *mistakes*, *errors*, *solecisms*, especially noting the difference between *errors* and *mistakes*. This difference not entirely clear, though. Errors are sometimes described as persistent mistakes, thus making *mistake* a more general term (Field, 2011). Others place both terms on the same level describing errors as performance issues while mistakes are considered to be based on the learner's knowledge (or lack thereof) of the target language (Cherrington, 2004). Some other languages use one general term such as Latvian *kluda*. The term *error* is used in this paper the same way because further division of errors is still to be discussed.

The need to apply the definition in annotation of corpora requires a simple understanding of errors. In learner corpora, an error usually is a deviation from a reconstruction of a correct target language structure. Such a reconstruction is sometimes called *target hypothesis* (Ellis, 1994, 54; Ludeling et al., 2005; Reznicek, Ludeling, Hirschmann, 2013). This way, the text is corrected by a native speaker of the target language (target hypothesis is created). Each mismatch between the text and the target hypothesis is considered an error. Such an approach is also adopted in the case of the learner corpus which is used in this study.

Various error taxonomies exist for various research problems and finding a suitable one is often seen as a challenge. Lack of a suitable error taxonomy is frequently one of the main problems in error analysis, and corpus linguistics is trying to solve the problem by offering learner corpora which are annotated by certain taxonomies (Dagneaux, Denness, Granger, 1998; Boyd, 2010; Hana et al., 2010). Finding the right taxonomy for a corpus is, however, another issue which this study attempts to deal with. A learner corpus of the second Baltic language (Lithuanian for Latvians, Latvian for Lithuanians) has been created, and it is decided to add error annotation to the data of the corpus. In order to do that, a suitable error taxonomy must be created. Errors in learner data of Baltic languages have been studied before, but categorization has most often been rather blurry because, mostly, only certain types have been analysed, such as errors in use of the Locative case (Laizane, 2014). Some other relevant studies are not so detailed and just give an overview of some error types without discussing classification thoroughly (Zigure, 1999; Dabasiņskiene, Cubajevaite, 2009; Zujevaite, Zilinskaite, 2012).

There is a publication on error types for Latvian (Deksne, Skadina, 2014), but the offered classification has been created for an automatic error-correction tool which is supposed to help people who already have a good command of Latvian (Deksne, Skadins, 2011). Because of that, very specific error types have been distinguished, such as the use of Nominative case in debitive mood constructions. It makes the taxonomy very precise but also complicated to use and not very suitable for beginner learner texts where very basic structures are used and the whole variety of errors must be accounted for.

The overview of the current situation shows that there currently is no suitable error taxonomy for annotating errors in the learner corpus of the second Baltic language (*Esam*). The aim of the study is to create such an error taxonomy that is suitable for annotating beginner texts of Latvian and Lithuanian, and efficient in use when annotating beginner learner texts. The study aims to do that based on the error taxonomy created by S. Granger for annotating a learner corpus of French (Granger, 2003).

### Methodology

The error taxonomies for learner corpora have so far been created based on two kinds of criteria:

- grouping based on the linguistic category the error belongs to (morphology, syntax, vocabulary...);
- grouping based on changes in comparison with the target hypothesis (omission, addition, misformation...).

However, some researchers argue that it is best to merge the two approaches as it lets one adapt the types of error according to the potential usefulness in research (James, 1998, 114). This way, an error taxonomy for a learner corpus of French has been created (Granger, 2003). The resulting system is general enough to cover various aspects of language and detailed enough to give some insight into the character of errors, so it was used as a basis for this study. Since S. Granger's taxonomy was created for French, it deals partly with different language structures from those found in Baltic languages, so it needs to be adapted annotating texts in Baltic languages.

Adaptation is carried out using various descriptions of Latvian and Lithuanian language systems, such as (Kalnaca, 2014; Praulins, 2012) and (Ambrazas, 2006) as well as various publications in the field of teaching and learning languages. The study attempts to answer the research question: what error groups and/or subgroups could form an effective error taxonomy for beginner learner texts of the second Baltic language?

The process is divided into two stages. First, the error types proposed by S. Granger are reviewed and evaluated for matching the systems of Baltic languages. If necessary, certain error types or subtypes are added, deleted, changed or merged. The second stage is annotating texts which allows for further evaluation of each subtype and adding or changing them as needed.

### Results and Discussion

The error taxonomy created for the learner corpus *Esam* has already been shortly introduced in (Znotina, 2017). The error types and their respective attributes in annotation have been presented there. In this paper, examples of errors are given instead of attributes. The examples of errors are authentic data from the learner corpus *Esam*.

In each one of the tables, the error matching the respective subtype has been underlined. Where necessary, correction has been provided in brackets, and an approximate translation into English is given. Note that not all error subtypes have examples from the data of both languages.

The first error type is errors of form. Those are the errors that have to do with spelling. This error type consists of four subtypes (Figure 1). Subtype *agglutination* consists of errors where words that are supposed to be written as separate are written together (as one word), or vice versa – a word is erroneously divided into two. Subtype *upper / lower case* is for the errors where capital letters are used unnecessarily or are not used when needed. Subtype *diacritics* is for the issues with any missing or redundant diacritics. The fourth subtype is for any other spelling errors, including typos.

Error subtype	Example in Latvian	Example in Lithuanian
Agglutination	<i>biju zveru darzā</i> (zvērudārzā) 'I was in a zoo'	<i>širdyje kaž kas</i> (kažkas) <i>suvirpēja</i> (suvirpa) 'something trembles in the heart'
Upper / lower case	<i>...un Viņai</i> (viņai) <i>patīk...</i> 'and she likes'	<i>Olimpinėje</i> (Olympinėse) <i>Žaidynėse</i> (žaidynėse) 'in the Olympic Games'
Diacritics	<i>Viņas</i> (Viņš) <i>ir uzņēmējs</i> (uzņēmējs) 'he is an entrepreneur'	<i>dažnai nera</i> (nēra) <i>pakankamai laiko</i> 'often there is not enough time'
Other spelling errors (including typos)	<i>man patīk tiktis</i> (tikties) <i>ar draugiem</i> 'I like to see my friends'	<i>kikvieną</i> (kiekvieną) <i>dieną</i> 'every day'

Figure 1. Error classification in learner corpus *Esam*: errors of form.

Syntax error subtypes are given in Figure 2. Syntax type is for errors that have to do with the ties between words, word order, and excess or shortage. There are four error subtypes. Word order subtype consists of cases where mostly correctly chosen words are put in an incorrect sequence. Word missing, and word redundant subtypes include cases where a word is respectively omitted or added unnecessarily. Cohesion error subtype applies to errors of matching words together in a coherent structure if the error is grammatical. If the nature of the error is lexical, then the error belongs to the vocabulary type, compatibility subtype.

Error subtype	Example in Latvian	Example in Lithuanian
Word order	<i>..radoša tik</i> (tikai) <i>dēļ naudas</i> (naudas dēļ) 'creative only because of money'	<i>Vieta, kur visada aš</i> (aš visada) <i>galju grįžti...</i> 'Place where I can always return...'
Word missing	<i>tā vārds</i> (vārds ir) <i>Džekis</i> 'its name is Džekis'	<i>Biologijos fakultete yra labai daug</i> (ko?) 'In the Faculty of Biology there is a lot of (what?)'
Word redundant	<i>..ceļiauju</i> (ceļoju) <i>uz Klaipēdu būt</i> (-) <i>brīvdienās</i> (brīvdienās) 'I travel to Klaipeda for holidays'	<i>ji pasiūlė man kartu su ja reikėjo</i> (-) <i>ruošti pjesę</i> 'she offered me to prepare a play together with her'
Cohesion	<i>Mans</i> (Manas) <i>mātes vārds ir...</i> 'My mother's name is...'	<i>aš nešioju kepurės, irgi</i> (ir) <i>pirštines</i> 'I wear hats and gloves'

Figure 2. Error classification in learner corpus *Esam*: errors of syntax.

Figure 3 offers morphology and word-formation error subtypes. This is the most diverse error type consisting of fifteen subtypes altogether. Derivation subtype is for those cases when a new word has been derived from elements of source and / or target language. Compounding subtype is similar, only here new words have been created by combining existing words. Inflection subtype consists of errors where the wrong case is used (but if the case is right and there are only issues in the form, then the error belongs to the form type, subtype of other spelling errors). The gender subtype includes the words used in the incorrect gender, while words used in incorrect number belong to the number subtype. The next subtype is for errors where the definite ending is used instead of an indefinite ending or vice versa. Degree of comparison error subtype is for errors where an adjective or adverb is used in superlative instead of comparative or similarly. Person subtype includes verbs used in the wrong person. Tense subtype is for incorrectly used time forms, whether it is using future instead of past (or similar), or using simple tense where complex tenses are needed, or vice versa. In the mood subtype are errors where, for example, conditional mood is used instead of indicative mood or similar. Voice subtype is for misuse of active voice and passive voice. Reflexivity subtype is for the cases when a reflexive form is used unnecessarily or not used when needed; or for incorrect reflexive forms. Participle confusion subtype is for misused or misformed participles. Perfective subtype is for misuse of prefix-verbs that indicate

finished actions in Baltic languages, and interactivity subtype consists of errors using forms that express one-time actions versus forms that express repeated actions.

Error subtype	Example in Latvian	Example in Lithuanian
Derivation	<i>patīk futbols, basketbols, vazinātes</i> (braukāt) ar ritēni (riteni) 'I like football, basketball, riding a bike'	<i>todėl užmiegojome</i> (užmigome) <i>anksti</i> 'so we fell asleep early'
Compounding	-	<i>aerouostas</i> (oro uostas) 'airport'
Inflection	<i>Es gribu pastāstīt par mana</i> (manu) <i>ģimeni</i> 'I want to tell about my family'	<i>didelė dalis drabužiai</i> (drabužių) <i>yra tokios spalvos</i> 'a great part of clothes are that color'
Gender	<i>Mans</i> (Manas) <i>acis ir brūnas.</i> 'My eyes are brown.'	<i>Jos</i> (Jie) <i>visi yra šalia</i> 'They are all nearby'
Number	<i>es biju ļoti skumīga šoreiz pār</i> (par) <i>atvaļinājumiem</i> (atvaļinājumu) 'I was very sad about the vacation this time'	<i>įvairuose</i> (įvairiomis) <i>gyvenimo valandą</i> (valandomis) 'in various times of life'
Definite / indefinite ending	<i>Fotoaparātā bija manas skaistas</i> (skaistās) <i>fotogrāfijas</i> 'My beautiful photos were in the camera'	<i>žmonių kamšatis ir ilgoji</i> (ilgos) <i>valandos viešajame transporte</i> 'crowding people and long hours in public transportation'
Degree of comparison	-	<i>Aš esu jaunesnioji</i> (jaunausia). 'I am the youngest'
Person	<i>Tēvs interesējies</i> (interesējas) <i>par automobiļiem</i> (automobiļiem) 'Father is interested in cars'	<i>aš nebuvo</i> (nebuvo) <i>name</i> (namie) 'I was not at home'
Tense	<i>viņai patīk ceļot,</i> un māte <i>apmeklēja</i> (ir apmeklējusi) <i>Krieviju, Franciju...</i> 'she likes to travel, and mother has visited Russia, France...'	<i>aš pasibundu</i> (pasibudau), <i>nes buvau labai alkane</i> 'I woke up because I was very hungry'
Mood	-	<i>Aš esu dėkinguma</i> (dėkinga), <i>ka</i> (kad) <i>sutikčiau</i> (sutikau) <i>jai</i> (ją) 'I am grateful I met her'
Voice	-	<i>Į ją galėtų</i> (būtų galima) <i>įeiti ir iš lauko</i> 'One could go in it also from the outside'
Reflexivity	<i>Pie sienām karās</i> (karāsies) <i>bērnu zīmējumi.</i> 'Children's drawings will hang on the walls'	<i>netrukdēme ir neriejomės</i> (nesiriejome) 'we did not disturb and did not fight'
Participle confusion	<i>mēs bijam</i> (bijām) <i>ļoti noguras</i> (nogurušas) 'we were very tired'	<i>vairuotojas, matytint</i> (matydamas), <i>kad bėgtu</i> (bėgu), (...) <i>pristabdau</i> (pristabdo) 'driver stops as he sees me running'
Perfective	-	<i>Kada ji ėjo</i> (atėjo) <i>iš darbo...</i> 'When she came from work...'
Iterativity	-	<i>mama man</i> (mane) <i>išmokydavo</i> (išmokė) <i>nekada nepasiduoti</i> 'mom taught me to never give up'

Figure 3. Error classification in learner corpus *Esam*: errors of morphology and word-formation.

Figure 4 shows the vocabulary error subtypes of the current taxonomy. These types categorize mistakes of lexical meanings. Of the three subtypes, the first one, meaning subtype, is for cases when a word's meaning does not match that of the sentence in which it is intended to be used. The other subtype, compatibility, is for cases when meanings of each used word match the meaning of the sentence but are not compatible with each other. In the stable phrase subtype are errors where the learner has unsuccessfully

tried to make a construction that exists as a stable phrase in the target language. Even if there is seemingly no meaningful difference, the person who corrects the text chooses a different word.

Error subtype	Example in Latvian	Example in Lithuanian
Meaning	<i>pelēks, biezš (resns) un ļoti labs kaķis Benas</i> ‘grey, fat and very good cat Benas’	<i>Ne tik katris (kiekvienas) latvis</i> ‘not only every Latvian’
Compatibility	<i>zils paklājs, kurš der (piestāv) pie sienu (sienām)</i> ‘blue carpet that matches the walls’	<i>nes esame tiek (tokios) įvairios</i> ‘because we are so different’
Stable phrase	<i>..braukšu uz ciemus (ciemos)</i> ‘I will go to visit’	<i>Aš tā (tai) labai įvertinu (vertinu)</i> ‘I appreciate it very much’

Figure 4. Error classification in learner corpus *Esam*: errors of vocabulary.

Errors of punctuation are divided into three subtypes as shown in Figure 5. The punctuation confusion subtype consists of errors where the learner has correctly decided that punctuation is needed but chosen the wrong punctuation. Punctuation redundant is for errors where there are unneeded punctuation marks, and punctuation missing is for those where some punctuation is needed but the learner has not used it.

Error subtype	Example in Latvian	Example in Lithuanian
Punctuation confusion	-	<i>dar kartā užmigau. (.)</i> ‘I fell asleep once more’
Punctuation redundant	<i>Tāpēc. (-) es biju ļoti skumīga</i> ‘Because of that I was very sad’	<i>Trečią valandą naktį (nakties). (-) aš...</i> ‘at three in the night I...’
Punctuation missing	<i>Viņai patīk ceļot(.) un māte apmeklēja (ir apmeklējusi)...</i> ‘She likes to travel, and mother has visited...’	<i>Viskas būtu(.) kaip aš norėčiau.</i> ‘Everything would be as I would want.’

Figure 5. Error classification in learner corpus *Esam*: errors of punctuation.

Each error is given only one, most likely target hypothesis and only one, most likely error type. That is done in order to not make the annotation process too complicated. There are sometimes issues where one error can be considered a mix of several types – in the Latvian example *mans* (*manas acis ir brunas* ‘my eyes are brown’) one can see a gender error, a number error or a common spelling error. In such cases, the annotator chooses the type and subtype that he/she finds most fitting. Overly thorough analysis would extremely slow down the annotation process, so the experience and intuition of the annotator is taken into account. Further discussions in each separate case could, however, lead to corrections in the corpus as well.

It is possible that correcting a mistake makes something else in the sentence incorrect. Such an example can be seen in the case of the Latvian sentence *Vinas uzbuve ir smalka, spēcīga [..]*. ‘Her build is fine, strong’ the author of the text has correctly matched several adjectives with a noun in feminine, but the corrector changed the noun to a masculine one – *augums* ‘figure’. It means that gender of the adjectives must be changed too. It is done in the correction, and the matching error type is selected. Nevertheless, careless evaluation of such examples can lead one to incorrect conclusions about the learners’ noun and adjective matching skills (or lack thereof). For that reason, it is necessary to note that the presence of an error in a text does not always point out to actual flaws in the language learner’s skills.

Similarly, the number of errors can artificially increase if there is an error type that must be assigned to multiple tokens, such as the word order errors. It means that one error can be counted as double, and such calculations can significantly affect the results if the researched data is not carefully reviewed.

The taxonomy may need some editing later on if texts of higher skill level are being annotated. Such error types as *style* and *register* were offered by S. Granger but rejected in this taxonomy because the first texts someone writes in a target language can hardly be corrected for matching styles and registers.

Further research could also shed some light on some problematic issues where selecting one error type over another can be controversial.

## Conclusions

The aim of the study has been reached and the research question of the study has been answered by separating error groups and subgroups and creating an effective error taxonomy for annotating beginner learner texts of the second Baltic language. The taxonomy described in the present paper is being used in annotation of the publicly available learner corpus of the second Baltic language – *Esam* (<http://www.esamkorpuss.lv/>). It can also be used in other corpora as long as the texts are written by beginners and the target language is one of the Baltic languages.

The taxonomy can now be used to discover various peculiarities of learner language, and it also allows for the use of statistical methods, as the number of errors belonging to a certain type can be counted. However, one must bear in mind that numbers can be misleading due to some practical aspects of correcting and annotation, and the quantitative measures should not be expected to always show true correlation with the learners' actual language skill level.

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# **Education for Getting Competence**



## Forming of Research Competence of Students on the Basis of Information Technologies

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**Abstract:** This article describes the formation of research competence of students based on information technologies. Targeted formation of research competence of future teachers of mathematics in accordance with the modern model of education in Kazakhstan in conditions of the development of information technologies requires: improving the research training of students; readiness for effective work in school and participation in social, economic and political life of the country; implementation of innovative forms and methods of training in educational process of pedagogical universities. The aim of the study is to identify methods of application of modern information technologies in educational process of the pedagogical universities contributing to the improvement of training of the future teacher for research activity in the conditions of the usage of information technologies. The research methods are: analysis of scientific-methodical and special literature on a research problem; study and analysis of: curricula and standards of professional pedagogical disciplines; the curricula, textbooks and teaching materials for scientific research; pedagogical observation, interview, questionnaires and testing. As a result, students showed a willingness to use information technologies when performing a research work. The paper identifies the methods of the usage of information technologies and illustrates their application in the research activities of natural science and humanities. The article proposes to solve the problem of the development of research competence of students using the methods of information technologies.

**Keywords:** research competence, methods, information technologies, university education.

### Introduction

Currently, one of the leading directions in the education system is the development of research competence of students. It develops not only cognitive activity, but also provides autonomy, independence of judgment, flexibility, critical and systemic thinking. A specialist needs the mentioned qualities in every activity. The modern teacher must be able to formulate independently and solve research tasks, but he/she should be proficient in information technologies. They help to carry out activities efficiently such as searching, processing and use of information in research activities of future teachers.

President N. Nazarbayev in his address to the nation on the modernization, noted the "importance of training of highly qualified personnel and the need for policy review in education" (Mukanova, 2017).

Currently, many teachers in schools do not know how to manage the research projects and how to apply information technologies in the learning process. They are limited only by use of the interactive whiteboard.

In this regard, the formation of research competence of students by usage of the methods of information technologies has become a topical direction of modern education. But the level of formation of skills using information technologies in the pedagogical university has not yet fully meet the modern requirements of improvement of pedagogical education. The previous studies covered the content and essence of the research competence of students of pedagogical university and pedagogical conditions of formation and development of interactive methods were identified (Kaskatayeva, 2014; Kaskatayeva, 2017). During the experiment it was found that in the University not enough attention is paid to formation of research competence on the basis of information technologies. Despite the pedagogical science approaches to understanding of essence and structure of competence conditions of its formation in the educational process are such that there is a lack of technology of formation of research competence of students of pedagogical universities on the basis of information technologies.

Therefore, it is possible to formulate a contradiction: schools need highly qualified teachers, able to lead research projects, but at the same time they lack the implementation of innovative information technologies.

Revealed contradiction gives rise to the problem of forming research competences of future teachers of mathematics on the basis of information technologies to improve the preparation of students to organize and conduct research work with pupils in the school. Therefore, the issue is relevant and has an innovative advantage. The subject of the study is the use of information technology for the formation of

research competence of the students. The aim of the study is to substantiate the development of ways of usage of modern information technologies in educational process of pedagogical universities contributing to the improvement of training of the future teacher for research activity. Used research methods are: analysis of scientific-methodical and special literature on the research problem; analysis of the curricula and professional pedagogical standards, and textbooks and instructional materials; pedagogical observation, interview, questionnaires and tests.

### **Methodology**

Methodological basis of the study is the fundamental work in the field of: pedagogy and psychology; professional preparation of teachers in teacher education; theory and methods of teaching at the pedagogical university; research in the field of natural science and humanitarian subjects; the concept of competence-based education; research in the field of the usage of information technologies (IT) in education. To achieve the purpose of the study the following hypothesis is put forward: the introduction of modern IT in educational process of pedagogical universities will increase the level of readiness of students to research activities as there is increased independence and cognitive activity of the student, and experimental work is carried out during the practice. Students wrote a thesis and their scientific ideas were introduced directly to the school. At the end of the internships there were organized interviews. The students reported on their academic work and practice with pupils on the formation of scientific skills in the final conference. The results of their work and reports were assessed at the end of each semester. The students of the experimental group showed the better ability to prepare reports, presentations, participation in research projects and in applied projects and coursework.

### **Results and Discussion**

The formation of students' research competence contributes to the creation of a competitive, fully developed personality. Research competence is formed on the basis of innate quality of called research behavior, as well as a range of elements that make up various educational key competences (Slavtynin, 1998).

The relevance of the study on scientific and theoretical level is determined also by the materials of the United Nations Educational, Scientific and Cultural Organization (UNESCO) scientific research where the expected result of modern education, based on the competence approach, are constructs of universal and professional competences. Aspects of the competence approach in education are researched such scientists like A.H. Arenova B. Briede, A.I. Suci, L. Mata and many other scientists in Western and Eastern Europe, and other parts of the world. A.H. Arenova (2012) article studies approaches, definitions and interpretations of professional competence analysing a pedagogue's professional competence as well. B. Briede (2009) studies the components of competence and defines the components of professional competence. A.I. Suci, L. Mata (2011) divide two broad categories of pedagogical competences in accordance with current approaches: general pedagogical competence and special pedagogical competence.

Competence approach is an attempt to make personal meaning into the educational process. Personal knowledge and personal understanding helps a person to make decisions to meet the social needs of society in terms of applied direction of education. In this regard, the competence approach in the educational activity meets the requirements of the socio-political life of the country. Future teachers must possess the following qualities: independence, initiative, ability to overcome stereotypes. It is worth mentioning that the teacher has to be able to generate ideas and not to wait for them from outside.

Thus, the research competence is the "key", the basis for the development of other more specific and subject-oriented competences, as it helps the student to learn, allows to become more flexible, competitive, helps to be more successful in later life that determines the significance of its formation.

The UNESCO Institute for Information Technologies in Education (IITE) strives to attain the Organization's strategic objectives targets at strengthening national capacities in ICT application in education in Member States in order to build inclusive knowledge societies and create prerequisites for sustainable development in all countries. Such topics as future learning contexts for open content, future curricula, the future of validation of learning outcomes, the future role of teachers and faculty and the changing role of HE institutions were studied to implement open Educational Resources and Massive Open Online Courses (Knyazeva, 2016).

In Kazakhstan the use of information and communication technologies (ICT) in the education system, including universities, is a part of the state policy of introduction of IT in society and education the processes of usage of information technologies are closely related to the processes in education where the processes of improvement and massive propagation of modern information technologies are going on. Such technologies are used extensively for transmission of information and provision of interaction of the teacher and learner in the modern systems of open and distance education. The modern teacher must not only possess knowledge of it but to be an expert on their use in their professional activities.

The use of information technologies in educational process investigated by A. Doering, C. Scharber, C. Miller and G. Veletsianos shows how the model *Technology, pedagogy, and content knowledge* (TPACK) can be used to evaluate teachers (Doering et al., 2009).

In the works of M.J. Koehler and P. Mishra are described the complex interaction of learning content, pedagogy and technology (Koehler, Mishra, 2009). Theoretical and practical interaction of these sets of knowledge produces successful integration to obtain high-quality knowledge.

M.L. Niess (2005) investigated the preparation of teachers of mathematics to integrated learning with information technologies throughout the program.

The main functions of information technologies are:

- 1) development of the individual student, preparation for independent productive activities in the information society through:
  - the development of a constructive, algorithmic thinking, due to the peculiarities of communication with the computer;
  - development of creative thinking by reducing the proportion of reproductive activities;
  - the formation of information culture, abilities to process information (when using spreadsheet, databases);
- 2) the implementation of social order caused by the usage of IT in modern society: training of trainees by means of information technologies to independent cognitive activity;
- 3) motivation of educational process:
  - improving the quality and efficiency of the learning process through the implementation of possibilities of information technologies;
  - identify and adopt incentives for the intensification of cognitive activity.

The use of information technologies in the process of research is much more efficient than the explanatory-illustrative and reproductive methods. Students working in project groups develop a joint action plan, find sources of information, ways of achieving goals, and roles are put forward and discuss ideas. All students are involved in a cognitive activity. Cooperative learning allows to master the elements of a culture of communication and control in a team.

Performing research work (term papers, theses and project work) with the application of information technologies allows: to increase the motivation for learning; to expand creative potential; to promote development of the student's personality: intellectual abilities, independence, responsibility, abilities to plan, make decisions, evaluate results; to create the conditions in which the student, on the basis of joint developments, conducts an independent search, identify ways of action, applies them to address new versions of training; to facilitate the acquisition of experience in solving real problems in their future independent life; get pleasure from research activities, fostering creative and active people, able to make informed decisions and to be independent throughout life (Lebedkova, Shushakova, 2012).

Information and communication technologies make research work more effective and enhance the work of students. When discussing the results of the work done presentation allows you to organize visual material: to show fragments on a big screen, highlight the most important parts of performance, increase individual part to enter the animation, use colours. When preparing for the seminar a presentation allows you to teach students how to create control charts and reports in a more comfortable communication mode. Form of presentation allows to place the material aesthetically.

One of the methods of research is a technique of an information resource. Students work with the book, reference, popular scientific and educational literature in didactics is considered one of the most important research methods. Currently, these sources can fully add and electronic publications and resources. The main advantage of this method is the possibility for the student to process the necessary

information in an accessible pace and at a convenient time repeatedly. Educational literature and multimedia tools successfully perform all of the didactic functions: search, train, develop, educate, motivate, control and correct. The greatest distribution of work with information resources meets individual work because it is possible to find the necessary material for research much easier. The method of information resource contributes to the consolidation and expansion of theoretical knowledge and to satisfy cognitive needs.

A computer is a technologization of educational process in the broadest sense - the development and introduction computer and information research models, combining a human and machine. In the preparation of reports for seminars or writing project, term papers and dissertations students use the method of information resource. For example, the students of the Faculty of Philology performed design work on the topic: "The Main literary movements of the New time. Romanticism" (Lukacs, 1964). There are several key areas to use the method of information resource:

- a visual representation of the world with the romantics - national and individual invariants;
- the study of German, English, French and American romanticism;
- the study of the theme: "From romanticism to realism. Merimee, Stendhal, Balzac, Dickens, Thackeray".

At the Department of mathematics, we use the software package "Investigation functions". The use of algorithmic regulations in the process of working with the package teaches the optimal search strategy for solving the training problems and develops logical thinking style. The package's "research functions" are used by students in the course and diploma works.

During the special course «Selected questions of a school course of geometry» usage of the projector significantly enhances the cognitive activity of students by increasing clarity and emotional intensity (animation, sound, video, and other multimedia effects). For example, the definition of second-order curves (ellipse, hyperbola, parabola) is given by using animation (Figure1, 2, 3).

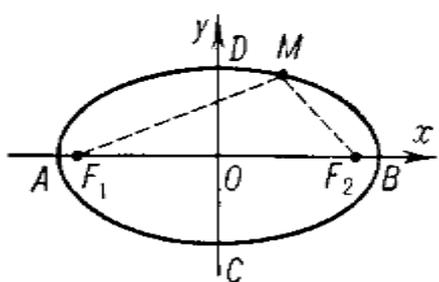


Figure 1. Ellipse

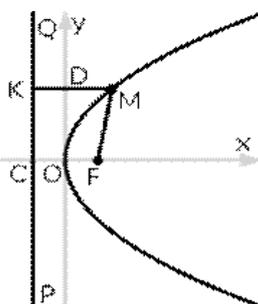


Figure 2. Parabola

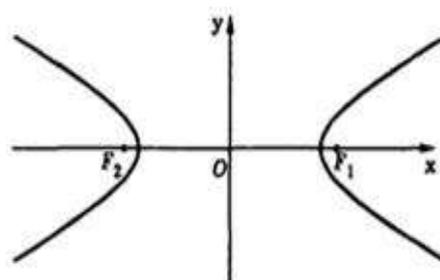


Figure 3. Hyperbola

The second order curves in the plane called the line of intersection of a circular cone with planes not passing through its vertex. If a plane intersects all the generators of one cavity of the cone, the section turns out an ellipse at the intersection of the generatrices of the two cavities is hyperbole, but if the secant plane is parallel to any generatrix, the cross section of the cone is a parabola (Konev, 2009). The set of all points in the plane for which the sum of the distances to two fixed points a constant value, is called an ellipse. When you animate point, M moves in the plane and describes a curve (Figure 1) for which the sum of the distances to two fixed points is a given constant. For any ellipse, we can find a Cartesian coordinate system such that the ellipse described by the equation (canonical equation of an ellipse):

$$\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1 \quad (1)$$

where  $a$  - the semimajor axis of the ellipse;  
 $b$  - the semiminor axis of the ellipse;  
 $0 < b \leq a$

Let us prove (1). It describes an ellipse with centre at the origin whose axes coincide with the coordinate axes. The number  $a$  is called the semimajor axis of the ellipse, and  $b$  is its minor radius.

$$MF_1 + MF_2 = 2a \quad (2)$$

$$MF_1 + MF_2 \geq F_1F_2 \quad (3)$$

where  $F_1F_2 = 2c$ ,  $a \geq c$ ;  $a > c$ ;

$$MF_1 = \sqrt{(x+c)^2 + y^2} \quad (4)$$

$$MF_2 = \sqrt{(x-c)^2 + y^2} \quad (5)$$

(4) and (5) substitute in (2)

$$\sqrt{(x+c)^2 + y^2} + \sqrt{(x-c)^2 + y^2} = 2a \quad (6)$$

$$x^2 + c^2 + y^2 = a^2 + \frac{c^2}{a^2}x^2 \quad (7)$$

where  $|x| \leq a$ ;

$$\left| \frac{cx}{a} \right| \leq c < a;$$

$$a \pm \frac{cx}{a} > 0.$$

Of the (7) have  $\frac{a^2 - c^2}{a^2}x^2 + y^2 = a^2 - c^2$ ;  $\Rightarrow \frac{x^2}{a^2} + \frac{y^2}{a^2 - c^2} = 1$ ;  $b^2 = a^2 - c^2 \leq a^2$ .

then we have:  $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$

Similarly, students on the basis of the definition of self-derive the canonical equation of the parabola and the hyperbola. The use of computer makes the proof of the canonical equations more visual, understandable and memorable. It describes an ellipse with centre at the origin whose axes coincide with the coordinate axes. The number  $a$  is called the semimajor axis of the ellipse, and  $b$  is its minor radius. Similarly, is determined by the parabola and the hyperbola.

The widespread use of a computer makes learning more visual, understandable and memorable. It can be argued that new technology increases the self-searching activity of students. The truth gained through one's own efforts, is of great cognitive value. And, accordingly, information technologies - the system of procedures of information processing with the purpose of its formation, organization, processing, dissemination and use. Using IT in independent work the students will optimize the learning management system, improve the efficiency and objectivity of the research process with considerable savings of time and motivate themselves for research. The student becomes an active participant in seminars. As a result, the students search new ideas. They discuss them with the teacher and relationship between the student and teacher turns into partnership. Thus, increases the intensity of practical and seminar classes. In this case, the computer acts as a means of intensifying the research process. The use of modern technical means of training allows to achieve a desired result of enhancing the cognitive activity of the students.

## Conclusions

The use of modern technical means in education helps to achieve the desired result of enhancing cognitive activity of students. The widespread use of IT makes learning more visual, understandable and memorable. It can be argued that new technology increases the self-searching activity of students. The truth gained through their efforts is of great cognitive value. The application of information technologies in educational process helps to form students' research competence and the effective organization of educational-cognitive activity. The use of IT makes independent work attractive and really modern. The individualization of learning, monitoring and summarizing are objective and in a timely manner.

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## Meaningful Reading Skills for Improvement of Biological Literacy in Primary School

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**Abstract:** Biology is one of the school subjects that is the most saturated with different terms and notions. The young person finds it rather difficult to orient in the diverse offer of information in today's age of information abundance because he has to "read" and assess critically to be able to learn with understanding. The reading literacy of Latvia's 15-year-old students is low; therefore, the aim of the present study is to find out how the improvement of meaningful reading skills applying different reading strategies affects students' biological literacy. In order to explore the mutual relationship a pedagogical experiment was carried out in Riga X gymnasium in 2017. The opinion of 58 students and their teacher of biology about the assessment of students' reading skills was examined by using different reading strategies aimed at improving students' reading skills in the experimental group and checking their level of reading by using PISA tests. Data were processed using the SPSS 23 statistic data processing program. The study findings show that students' level of reading after the application of reading strategies increases and their biological literacy improves.

**Keywords:** reading skills, scientific literacy, biological literacy, PISA tests, 15-years old students, school education.

### Introduction

Mastery of key subjects is essential to student success. Science is one of the included key subjects for the development of 21st century skills (Partnership for 21<sup>st</sup>..., 2015). The European Commission has identified 8 key competences that are fundamental for each individual in a knowledge-based society (Borrell-Fontelles, Enestam, 2006). These skills, among others, mention communicating in the mother tongue: the ability to express and interpret concepts, thoughts, feelings, facts and opinions both orally and in writing, as well as mathematical, scientific and technological competence: sound mastery of numeracy, understanding of the natural world and the ability to apply knowledge and technology to perceived human needs. It means that the young person must be science and reading-writing literate.

The young person finds it rather difficult to orient in the diverse offer of information in today's age of information abundance because he has to "read" and assess critically to be able to learn with understanding. M. Fullan, M. Langworthy and M. Barber (2014, 7) indicate that learners have to strive to achieve "deep learning as creating and using new knowledge in the world, to re-structure the learning process towards knowledge creation and purposeful use". Being the Y generation, they are informative literate and "connect learning to the world by using the power of digital tools" (ibid., 10).

Biology as a subject, as noted J.H. Wandersee (1988, 99), is especially prone to terminology overload. Terminology is a vital part of biology, however, biology education and even scientists experience difficulty keeping up with the terms in their field. There are many terms and many synonyms; most terms are long, polysyllabic words of Greek or Latin origin, which makes them more difficult to read or say. If such terms are to be learned meaningfully, they must be connected to what the learner already knows. Biology acquisition faces such difficulties as language and terminology, mathematical content, points of biological content and time allowance" (Bahar, Johnstone, Hansell, 1999, 84) as well as "overstuffed" biology curriculum (Koba, Tweed, 2009), "overloaded biology curricula, the abstract and interdisciplinary nature of biological concepts, and difficulties with the textbooks (Cimer, 2012, 61). R. Lazarowitz and S. Penso (1992), too, maintain that low-achieving students in high schools identify learning difficulties regarding the biology concepts.

In order to acquire biology successfully, students need to comprehend the basic concepts. Teacher's precise explanation of the basic concepts facilitates the corresponding development of student's knowledge and comprehension. The understanding of the basic concept develops gradually (Kreile, Krumina, 2009, 330). It means that if the teacher uses biology texts for students' independent reading she has to take into consideration that, first, it is important for the student to recognize this concept, then to understand it and this is the only way for interconnections (contiguity between the basic concepts) to develop. The awareness of the former secondary students – now the first-year students of the biology

bachelor's programme - of what learning is corresponds to the classical European didactic approach, namely, acquisition of knowledge and skills to apply it, viewing knowledge as the key component of learner's experience as well as emphasizing the cognitive process of learning (Birzina, 2011, 50).

Thus, guiding students' learning with understanding makes it possible to sustain students' interest in the natural world, help students explore new areas of interest, improve their explanations of biological concepts, help them understand and use inquiry and technology, and help them make informed personal and social decisions. Students should learn and understand how to use biological information in their daily lives (Uno, 1999, 3).

### **Reading literacy**

According to the latest PISA report, on average 17% of European 15-year-olds (13% of 15-year-old girls and 27% of 15-year-old boys) have poor reading skills and are not able to understand their own school textbooks well (OECD, 2013a). Reading literacy means "understanding, using and reflecting on written texts, in order to achieve one's goals, to develop one's knowledge and potential and to participate in society." (Kirsch et al., 2002, 25). Thus, the reading competence does not only mean the ability to comprehend the surface meaning of the text but also includes the ability to understand and express one's opinion about the text. It includes cognitive and metacognitive skills: to use different adequate strategies in work with the text (Geske et al., 2013).

The use of the reading strategy helps students acquire the understanding of the text by analysing and interpreting it. Students have to acquire the use of a reading strategy as any other new skill. It would be best mastered using the scaffolding method, which includes modelling of the strategy offering students to try out this strategy themselves in practice and then to use it independently. A learner can apply any reading strategy in many different ways: before reading, during reading and/or after reading. There are also many kinds of reading strategies that are used for developing the reading competence. For example, N.K. Duke and P.D. Pearson (2008) offer six strategies: prediction and prior knowledge activation, think-aloud, text structuring, visual representations of the text, summarization and questioning. Undeniably, a teacher plays an important role in developing student's reading skill because only the teacher is able to help students acquire different reading strategies.

Students' achievement in reading is defined by giving points and connecting the number of points with the competence level. Taking into consideration the cognitive content of separate tasks and the scale of points, the reading competence is assessed on seven levels – the highest is level six, the lowest – 1 b level (Table 1). The average achievement of Latvia's students in reading is 488 points – it is a bit lower than the Organisation for Economic Cooperation and Development (OECD) average level (493 points). Latvia's peculiarity is the great number of students who have the lowest levels of the reading competence. This relation during the period of OECD studies from 2003 – 2009 has not changed significantly and is lower than OECD average. The number of students, who have the highest levels of reading, in its turn, has increased a bit but is still lower than OECD average (Geske et al., 2013; OECD, 2016). This means that it is still very topical to improve students' reading competence and to achieve that students read with understanding or meaningfully.

### **Scientific literacy and biological literacy**

Nowadays the aim of science education is the formation of scientific literacy. It would be necessary to form a common scientific literacy in all science subjects at school so that students could see interconnections and were able to apply their complex, interdisciplinary knowledge and skills that have been acquired in biology, geography, physics and other school subjects in real life situations. Educators use the phrase "scientific literacy" to express the major goal of contemporary science education, an aim recognized for all students (Uno, 1999, 39). Students' scientific literacy is also one of the indicators of the quality of education. International comparative studies in science (Geske, 2000; Kangro, Geske, 2001) show comparatively low achievement of Latvia's students in science and mathematics.

Undeniably, as M. Rocard and other co-authors (Rocard et al., 2007, 7) have noted scientific literacy is important for understanding environmental, medical, economic and other issues that modern societies face, which rely heavily on technological and scientific advances of the increasing complexity. However, one should take into account that deep understanding in science goes well beyond

memorization of isolated facts and concepts. Deep scientific understanding includes a coherent system of facts, concepts, scientific inquiry, and strong problem-solving ability (Staver, 2007, 11).

The concept of scientific literacy appeared in Latvia after regaining the independence in 1991 (Lamauskas, Gedrovics, 2005). Such concepts as biological literacy and chemical literacy (Cedere, Mozeika, 2008) are also used in science education. There is a close connection between scientific literacy and biological literacy. As recognized by G.E. Uno and R.W. Bybee (1994), biological literacy is a subset of scientific literacy, and not a final state to be achieved within a single biological discipline but a continuum over which the individual's biological understanding develops throughout his or her lifetime. G. Uno, in his turn, divides biological literacy into four levels (Table 1). The levels of biology literacy suggested by him, to a certain extent, are similar to SOLO (Structure of the Observed Learning Outcome) taxonomy (Biggs, 1995) and provide a systematic way of describing how learner's performance grows in complexity while forming the biological literacy.

Table 1

### Comparing levels and descriptions of reading literacy, scientific literacy and biological literacy

Reading literacy (OECD, 2013b)	Scientific literacy (OECD, 2000)	Biological literacy (Uno, Bybee, 1994; Uno, 1999)
<b>1a (355 points)</b> Locate a single piece of explicitly stated information <b>1b ( 262 points)</b> Locate one or more independent pieces of explicitly stated information	<b>1</b> Limited scientific knowledge	<b>Nominal</b> Can identify terms and questions as biological in nature, but possess misconceptions, and provide naive explanations of biological concepts
<b>2 (407 points)</b> Locate one or more pieces of information, which may need to be inferred and may need to meet several conditions	<b>2</b> Adequate scientific knowledge to provide possible explanations in familiar contexts	<b>Functional</b> Use biological vocabulary, define terms correctly, but memorize responses
<b>3 (480 points)</b> Locate, and in some cases recognise the relationship between several pieces of information that must meet multiple conditions	<b>3</b> Can clearly describe scientific issues in a range of contexts	<b>Structural</b> Understand the conceptual scheme of biology, possess procedural knowledge and skills, and can explain biological concepts in their own words
<b>4 (553 points)</b> Locate and organise several pieces of embedded information	<b>4</b> Can make inference, can integrate explanation	<b>Multidimensional</b> Understand the place of biology among other disciplines, know the history and nature of biology, and understand the interactions between biology and society
<b>5 (626 points)</b> Locate and organise several pieces of deeply embedded information	<b>5</b> Can apply scientific concepts and knowledge about science	
<b>6 (698 points)</b> Make multiple inferences, comparisons and contrasts that are both detailed and precise	<b>6</b> Can consistently identify, explain and apply scientific knowledge and knowledge about science in a variety of complex life situations	

As the study reflected in the article is connected with the exploration of reading skills and biological literacy, the study also uses PISA tests (PISA, 2015), then Table 1 (adapted from (Garthwaite, France, Ward, 2014)) presents the mutual connection between reading literacy, scientific literacy and biological literacy.

The aim of the study is to explore the impact of meaningful reading literacy skills on biological literacy by using different reading strategies in the process of learning biology.

The study question was identified: how the use of various reading strategies in the process of teaching biology improves students' reading skills and biology literacy?

## Methodology

A pedagogical experiment was carried out to clarify how the use of various reading strategies in the biology teaching process has improved students' reading and biology literacy in 2017. The study took place in five successive stages (Figure 1): the situation analysis, OECD test 1 (PISA, 2015), elaboration of biological assignment, approbation of the developed assignment and OECD test 2 (PISA, 2015). The study was conducted using the method of convenience (Geske, Grinfelds, 2006). The sampling consisted of two convenient groups – 15-years old students of one of Riga X gymnasium: the control group 30 and experimental group 28, who were accessible in the given circumstances, overall 58 students. The number of respondents in some stages of the study had insignificant differences and it did not influence the course of the study. The study was performed from February to April 2017.

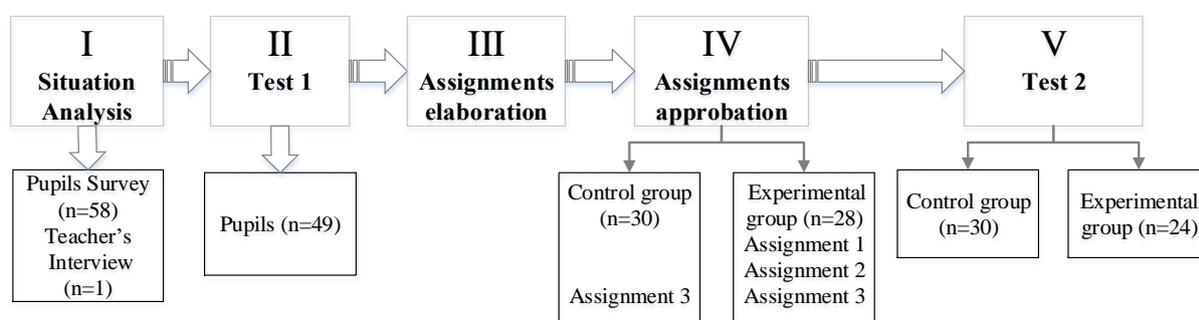


Figure 1. Scheme of the stages of the study.

**The first stage** was devoted to finding out students' self-assessment of their reading literacy. The questionnaires were developed using the Lickert scale with four possible versions of answers (skills: 1 – very poor; 2 – poor; 3 – good; 4 – very good). A structured interview was conducted with their teacher of biology.

**During the second stage**, using tasks of different difficulty levels from OECD PISA (PISA, 2015; Geske et al., 2013) Test 1, students' level of reading was assessed. Students of Grade 9a and Grade 9b did the tasks. The experimental and control groups were chosen. The class with the lowest achievement in the tasks of the highest level and in the test in general became the experimental group.

Three tasks in the biology theme "Nervous system" were developed in **the third stage**. This is one of the relatively difficult themes for students because they have to master many abstract biological concepts (Bahar, Johnstone, Hansell, 1999; Cimer, 2012). The tasks included not only issues that had to be mastered theoretically but also instructions how to use the intended reading strategy for the text comprehension. A self-assessment table for student's reflection on the used reading strategy supplemented each task.

**The fourth stage** was devoted to the pedagogical experiment for the approbation of the developed tasks. Students of the experimental group in the first two tasks along doing the task also acquired and assessed reading strategies. They had to use text visualisation and structuring based on their prior knowledge in the reading strategy in the first task. In the second task, they had to find the most important information in the text, to write it in their own words, to retell the text and to put down the most important from what the classmate was telling. Both groups did the third task using such reading strategies as prediction, prior knowledge activation, questioning and text structuring, summarization and learning through think-aloud. The qualitative content analysis of students' summaries of both groups was also performed in this stage.

Test 2 (PISA, 2015; Geske et al., 2013) to identify students' level of reading literacy and biological literacy was carried out in the **fifth stage**. The tasks were done by 30 students from the experimental group and 24 – from the control group. Data were processed using the SPSS 23 statistic data processing program.

## Results and Discussion

In order to find out how the use of different reading strategies in the teaching/learning process of biology improves students' reading literacy and biological literacy, students' and teacher's opinions about the reading literacy were compared, the use of reading strategies in the acquisition of biology was found and the results of Test 1 and Test 2 were analysed.

### Students' and teacher's opinion about reading skills

Summarising the results of students' survey, it was learnt that students of both classes considered their skill to express themselves, using the biology terms, as the poorest ( $M=2.33$ ). However, students considered their skill to orient in the internet searching for the necessary information for biology lessons as very well or well developed ( $M=3.55$ ) (Figure 2).

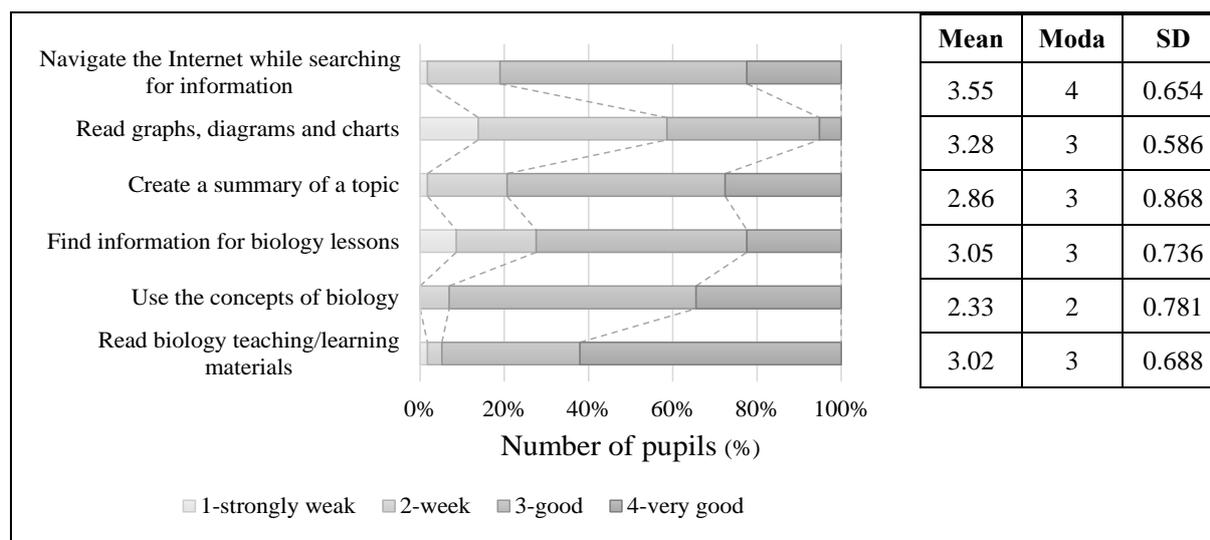


Figure 2. Students' point of view on reading literacy.

The teacher of biology, too, considers that students have a very well-developed skill of orienting in the internet searching for the necessary information in relation to biology and materials when preparing for biology lessons. Yet, she points out that students are able to find information in the internet but usually it does not come from research articles, therefore she considers that students need to learn to read popular scientific publications and research articles in biology lessons. However, despite the fact whether the information is found in the internet or read in the printed text students have to improve their skill of selecting the information.

Students' and teacher's opinion coincides as regards students' skills to read the biology textbook materials and to read information from graphs, schemes and diagrams. These skills are well developed and usually do not cause problems for students in the learning process. However, the teacher considers that students perceive the information from biology materials better if all biology concepts are understandable. She assesses students' skill to make a summary about a particular theme as good, which partly coincides with students' assessment (50% admit that this skill is well developed). However, students themselves are aware and the teacher indicates that students lack the skill of using biology terms. This is also proved by indicators of descriptive statistics ( $M=2.33$ ) with the most frequently used choice "poor" (Mode=2).

### Analysis of using reading strategies in the acquisition of biology

In order to find out how the use of reading strategies affected the acquisition of biology, students' performance in doing tasks and their self-assessment were compared. As seen in Table 2, students of the experimental group admit that reading strategies have facilitated the understanding of biology terms. The use of text visualization and structuring has led to the increase of students' comprehension from  $M=1.94$  to  $M=3.29$ ; in the second strategy (to find the most important information in the text, to write it in one's own words, to retell the text and to make notes from what the classmate has told) – from  $M=2.52$  to  $M=3.56$ .

Table 2

**Comparison of students' self-assessment after the use of two reading strategies**

Description of the item	The first reading strategy			The second reading strategy		
	Mean	Mode	SD	Mean	Mode	SD
I understood the text after the first reading	3.47	3	0.514	3.44	3	0.583
I knew all the terms	1.94	2	0.659	2.52	3	1.005
After completing the task, I comprehended the topic	3.29	4	0.772	3.56	4	0.583
	N=17			N=25		

The same regularity is observed in the use of the third strategy (prediction and prior knowledge activation, questioning and text structuring, summarization and think-aloud). The comprehension of biology terms increases from M=2.04 to M=2.48 for the students of the experimental group and from M=2.17 to M=2.30 in the control group (Table 3).

Table 3

**Comparison of students' self-assessment after using of the common reading strategy**

Description of the item	Experimental group			Control group		
	Mean	Mode	SD	Mean	Mode	SD
I understood the text after the first reading	3.19	3	0.622	3.03	3	0.615
I knew all the terms	2.04	2	0.808	2.17	2	0.834
After completing the task, I have no difficulties to create a summary	2.48	2	0.935	2.30	2	0.877
	N=27			N=30		

Students' performance and the level of their biological literacy is reflected in Table 4. The comparison of answers given by students of the experimental and control groups allows stating that there are no statistically significant differences; however, the results of the experimental group are a bit better.

Table 4

**Results of tasks performed by students and the level of biological literacy**

Issue	Experimental group			Control group
	Assignment 1	Assignment 2	Assignment 3	Assignment 3
Average level of performance	51%	75%	71%	68%
Difficulty level of tasks	0.51	0.75	0.71	0.68
Level of biological literacy	Structural	Structural	Structural	Structural

In order to find out the acquisition of biology terms, the qualitative content analysis of students' summaries of both groups was performed. Twelve biology terms were mentioned in students' summaries: embryonic period; neural cell; neuron; synapses; central nervous system; perceptive memory; short-term memory; working memory; long-term memory; hippocampus; nervous system; irritation. Students of the control group have mentioned 3.37 terms on average, students of the experimental group, in their turn, have mentioned on average by two terms more, i.e., 5.56 terms from the 12 given. The most frequently mentioned terms are "neural cell", "neuron", "short-term memory" and "long-term memory". Students of both the experimental and the control groups fell within the structural level of the biological literacy: they were able to understand the conceptual scheme of biology; they possessed procedural knowledge and skills and were able to explain biological concepts in their own words.

## Analysis of Test 1 and Test 2

After doing Test 1 (Table 5) it was stated that the reading competence of students of both groups differed statistically insignificantly. The observed tendency was that if the level of the reading competence increased, i.e., the difficulty level of the task increased, the number of students who were able to do this task decreased.

Results of Test 2 show that the average result of the experimental group in all separate tasks is higher by 7% than that of the control group. The results of students of the experimental group on the higher levels of the reading competence have become better than those of the control group. For example, ~ 10% more students in the experimental group have performed the tasks of the 5<sup>th</sup> level than in the control group, 6<sup>th</sup> level tasks about ~ 15%. Comparing the results of Test 1 and Test 2 achieved by both the groups it is possible to see that the performance of the experimental group on the 5<sup>th</sup> and 6<sup>th</sup> level of the reading competence has noticeably increased.

Comparing Test 1 and Test 2 results achieved by the experimental group and the control group with the average results of (PISA, 2015) OECD countries and Latvia it is seen that after the performance of tests and counting the points obtained on the respective level and expressing them in percentage the results are much higher. Probably, the fact that the study was carried out in Riga X gymnasium in which students are enrolled after the selection process could explain it. OECD (PISA, 2015) study, in its turn, is performed covering a wide network of general comprehensive schools of Latvia.

Table 5

**Test results of the experimental and control group (%) and their comparison with (PISA, 2015) levels of the reading competence in Latvia and the mean indicator of OECD countries (OECD,2016)**

Issue \ Level	<1.b	1. b	1. a	2.	3.	4.	5.	6.
Test 1 (Control group)	0	0	0	12.0	16.0	32.0	28.0	12.0
Test 2 (Control group)	0	0	0	0	16.8	36.6	36.6	10.0
Test 1 (Experimental group)	0	0	0	16.7	16.7	29.2	29.2	8.2
Test 2 (Experimental group)	0	0	0	0	8.4	20.8	45.8	25
OECD (average)	1.3	5.2	13.6	23.2	27.9	20.5	7.2	1.1
Latvia (average)	0.4	3.8	13.4	27.2	32.1	18.7	4	0.3

### Limitation of the study

The limitations of the study are related to the sample size, the measure used to collect the data, the access and longitudinal effects. As it was a case study, researchers in a random selection situation had to accept the chosen number of participants and the access to them. The results of the obtained data, too, show that the study could anticipate more specific questions regarding the aspects of reading literacy and biological literacy. It would have also been important to include more open questions that would help to learn the respondents' opinions in more detail. The obtained conclusions are correct for the concrete target group – Grade 9 students of the gymnasium; however, it should be taken into consideration that results of these students could be higher than in other general comprehensive schools of Latvia. This means that in order to define the improvement of reading literacy and biological literacy a more comprehensive and time-consuming research is needed.

### Conclusions

Students' reading literacy in Latvia on the higher levels of the reading competence is low which hinders the attainment of one of the aims of modern science education – the formation of scientific literacy. There exists a mutual connection between levels of reading, scientific and biological literacy, thus it is possible to promote the biological literacy by improving the reading literacy.

In order to facilitate the improvement of student's biological literacy, it is, first, necessary to acquire the basic terminology of biology and then its gradual, more profound comprehension. It can be developed using meaningfully different reading strategies aimed at text comprehension: prediction and prior knowledge activation, think-aloud, text structuring, visual representations of text, summarization and questioning. This means that the diversification of the kinds of learning using the verbally linguistic kinds (reading, telling, summary in one's own words), students' individual learning (structuring, visualization, questioning) and the improvement of interpersonal skills (cooperative learning, retelling in the group and comparison of notes) leads to the development of students' reading literacy. The use of different reading strategies in the teaching/learning process of biology facilitates the improvement of meaningful reading literacy, which is proved by the increase of results on the higher levels of reading competence of the experimental group. Thus, it allows concluding that a meaningful use of reading strategies helps students make a spring from knowing to understanding and to improve their performance reaching a higher level of biological literacy.

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## Completeness of Designs of Lifelong Learning Programmes: Assessment of the Level of Conception of Student Projects

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**Abstract:** Nowadays, designing and implementing projects in practice is one of the basic prerequisites of a university graduate. In the field of education, a project can also be related to the creation of training programmes. It is essential for planning any programme to consider a range of different factors such as concept of the activity, schedule, budget, staffing, ways of implementation, space possibilities, and others. The Institute of Education and Communication is a pedagogical and scientific research institute of the Czech University of Life Sciences Prague, which systematically focuses among other things on the development of professional competencies of students through the implementation of their professional practice and pedagogical practice. The Institute is also engaged in the education of future counsellors in the sector of vocational education (namely a Bachelor field of study “Guidance in Vocational Education”). It is these students who should be able to analyse the educational needs of the given situation or entity and to create an educational programme with respect to all the necessary steps and stages to reach its successful implementation. The aim of the study is to analyse the assessment reviews of student projects consisting of the design of their own lifelong learning programme and to evaluate the level of conception and completeness of these student project designs, where the students are to demonstrate the ability of the synthetically-analytical thinking and application of the principles of vocational education. A total of 170 evaluation reviews of designed Bachelor student projects in full-time and part-time forms of study were under investigation. The reviews from three academic years in a row, namely 2013-2014, 2014-2015, 2015-2016, were analysed in terms of the value of ratings of selected items given within the appropriate scale. It was concluded that students of the last years of Bachelor degree programmes, both full-time and part-time groups, were able to project education programmes of varying scope and for different target groups. Students of the part-time form of study were better assessed than full-time students.

**Keywords:** Project, conception, lifelong learning, assessment, vocational education.

### Introduction

Designing and implementing projects in practice is one of the basic prerequisites of a university graduate. In general, the concept of a *project* can be viewed from different perspectives. A project can be referred to as a processed intention, timetable or plan of any future activity or its outcome (a building, a machine, and the like). The creation of such projects is called designing and the person who is involved is the designer. In addition, a project can be seen as a time-bound effort that aims to create a unique product or service involving more people linked to the project team for the duration of the project. Such an effort can be characterized by a three-dimensional objective (project scope, schedule and costs). This is the area of so-called project management (Fox, Van der Walddt, 2008; Rosenau, Githens, 2005). For the latter definition, in education a project can also be related to the creation of training programmes, teaching materials or to planning further education, including all the necessary stages of their implementation (Heyworth, 2002; Lucas, Spencer, Claxton, 2012). According to G. Thomas (2013), in the field of education, a project is an individual or collaborative activity that is carefully planned and explored by students. In educational institutions, the project is a research task for the student generally requiring more effort and more independent work than common assignments. This means that it is necessary to pay attention to the project initiation, analysis and planning, findings, conclusions and closure of the project (Heyworth, 2002; Rosenau, Githens, 2005).

Focusing on lifelong learning J. Yang, C. Schneller and S. Roche (2015) mention that it is becoming a part of education policy discourse around the globe. It is the process, which supports the lifelong learning of each citizen. In our country, according to The Strategy of Lifelong Learning in the Czech Republic (Ministry of Education..., 2007) the basic precondition for achieving success in a modern,

dynamically developing economic environment lies particularly in the ability of the inhabitants of this country to compete in the global, rapidly changing labour market. Lifelong learning includes *formal education*, which is performed in educational institutions, usually in schools. Its functions, targets, contents, organizational forms and methods of assessment are defined by legal regulations. This encompasses obtaining the given level of education (primary, secondary, tertiary education). *Non-formal education* is less formal in terms of its performance criteria and is more concerned with daily life problems. It emphasizes gaining knowledge, skills and competencies that can improve the social and working position of the individual. Non-formal education is provided by employers, private educational institutes, schools and other organizations. These include organized leisure time activities for participants of different ages such as foreign language courses, computer courses, retraining courses and also short-term training and lectures. This kind of education requires the participation of a professional instructor, teacher or trained organizer. It does not lead to obtaining a level of education. The last one, *informal learning*, which is understood as a process of obtaining knowledge, acquiring skills and competencies from everyday experience and activities at work, in the family and in one's leisure time. It also includes self-education, where the learner has no way of testing their acquired knowledge (Medel-Anonuevo, 2002; Ministry of Education..., 2007; Petty, 2009; Van Merriënboer et al., 2009).

Lifelong learning programmes should be designed in such a way as to provide progression to a level higher than that of learners' prior achievement, they should include qualifications that are of sufficient size and accurate to stretch learners and are clearly linked to suitable progression opportunities in training, employment or higher levels of education. Such programmes should include focus on qualifications such as functional skills that will act as a stepping stone for learners' achievement, they should allow for meaningful work experience related to the vocational area of the study programme, which develops employability skills and/or creates potential employment options. Educational institutions and their tutors are likely to be involved with the planning of their own study programme. It is crucial for planning a programme to consider a range of different factors, including the following: (a) the learners, what their needs are - learning objectives, (b) what classrooms/facilities are available, (c) teaching models and strategies, (d) the use of teaching skills and what support is available to enhance the learning process, (e) a timescale - what the timescales are - what the key dates for induction, assessment and evaluation are, (f) ways of engagement and motivation of the learners, (g) ways of assessment of learners' progress and achievement, the application of their developing knowledge and understanding (Ingle, Duckworth, 2013). In a nutshell, key considerations of designing an educational programme should consist in particular of a curriculum and its components in individual courses, timetable, staffing, space for realization of the programme, costs of implementation of the educational programme, learning objectives, forms and methods of teaching, activities of educators and learners, key learning resources and support of teaching and learning process, criteria and methods of formative and summative assessment of the learners and for evaluation of the programme (Bakay, Kalem, Slavík, 2010; European Commission, 2015; Petty, 2009).

A significant part of study programmes should consist of acquiring professional experience and linking the acquired knowledge with the application in practice. Following the above-mentioned context, the Institute of Education and Communication is a pedagogical and scientific research institute of the Czech University of Life Sciences Prague, which systematically focuses among other things on the development of professional competencies of students through the implementation of their professional practice and pedagogical practice, as mentioned by E. Kriz (2014). Besides students of Bachelor fields of study with specialization in teaching of vocational subjects and practical training, the Institute is also engaged in the education of future counsellors in the sector of vocational education (a Bachelor field of study "Guidance in Vocational Education"). It is these students who should be able to analyze the educational needs of the given situation or entity and to create an educational programme, most often in non-formal education, including all its steps and stages of its successful implementation. In reality, these students are acquainted among other activities with the issues of project management, with the design of educational programmes, evaluation tools for assessing educational programmes, principles of management in education, and so on. In the last year of their studies, the students are assigned to respect the given instructions to project a comprehensive design of a lifelong learning programme for the chosen discipline and target group, including organizational and economic aspects and recommendations of tools for its evaluation. These projects are developed in conjunction with the professional practice of the students in educational institutions, organizations, companies where corporate training takes place, and

so on. Each of the projects is designed, defended for a commission of professionals and for the audience at the annual institutional student conference and evaluated both by the assigned evaluator and by the commission in order to determine whether it meets the specified criteria and whether it would be applicable in practice. In this way, students demonstrate that they are acquainted with the methodology of designing educational programmes for vocational education and training, that they are able to apply their knowledge to independent work and teamwork, and that they are well prepared for effective communication with clients, especially in the field of professional and educational counselling. They further demonstrate that they will be able to co-ordinate the work of others, lead workgroups, that they have competencies to think systematically and critically, and that they will be able to make comprehensive assessments of situations and problems.

The aim of the study is to analyse the assessments of student projects consisting of the design of their own lifelong learning programme and to evaluate the level of conception and completeness of these student project designs.

### Methodology

As indicated above, the aim of the field of study “Guidance in Vocational Education” is to provide graduates with competencies to perform professional and managerial activities in the sector of further vocational education and training. The graduates acquire professional competencies that enable them to create and evaluate educational programmes and actively implement their own vocational education process. Theoretical knowledge and practice in lectures and seminars are closely linked to professional practice of the students of the last year of study at the selected workplace. Linking their theoretical basis and practical experience the students think of the project of non-formal education and design a complex programme in the field of lifelong learning. The project of further education is based primarily on the needs and conditions of the workplace for performing the practice. Such a student project is designed independently under the responsibility of the supervisor of the workplace and it solves the needs of the workplace. As stated in the introductory part, each of the students designs such a comprehensive project, defends it for a commission of professionals and for the audience at the annual institutional student conference and is given an assessment of the project processed by the assigned evaluator and by the commission, all being members of the academic staff of the Institute, in order to determine whether it meets the specified criteria and whether it would really be applicable in practice. In the presented project, the student is to demonstrate the ability of the synthetically-analytical thinking and application of the principles of vocational education.

The researchers are academic staff of the Institute for Education and Communication as well, and they are also involved in the assessment of student projects related to practice. *They were interested in the analysis of the review assessments of student projects consisting of the design of their own lifelong learning programme. Furthermore, the purpose of their investigation was to evaluate the level of conception and completeness of these student project designs.*

Project reviews consisted of assessing the following aspects based on given criteria, as described e.g. by W. Fox and G. Van der Waldt (2008), S. Ingle and V. Duckworth (2013), G. Petty (2009), and M.D. Rosenau and G.D. Githens (2005) in the introductory part of the paper:

- *the contribution of the project (programme) for practice,*
- *the level of language and professional processing of the project,*
- *the formal level of the project.*

In the end, the reviewer assigns *an overall assessment of the concept of the student project*. The assessment of these categories was distributed on a rating scale ranging from one (the best design of the project) to four (the worst design of the project). Further analysis of empirical data was performed based on their division into two groups. In particular, the data were treated as a sum of the best and worst values in a 1:1 ratio (50 % : 50 %).

Evaluation reviews of student projects from three academic years in a row, namely 2013-2014, 2014-2015, 2015-2016, were analysed in terms of the value of ratings given within the appropriate scale. This continuity is important because it follows the same set of conditions for the project, it means the same assignment to all students, the same curriculum, and the same personnel assurance by academic staff. A total of 170 designed student projects of third-year students of the field of study “Guidance in

Vocational Education”, both in full-time (N = 95) and part-time forms of study (N = 75) were under investigation.

Comparison of the results (total average values) is therefore appropriate in terms of the comparable number of respondents in the three individual years in both full-time and part-time forms of study.

The results of analyses are presented in the following section.

## Results and Discussion

A total of 170 projects assessment reviews were analysed. Overall, nine pairs of assessed items, so three items per each of the three academic years and per the form of study, were compared. The items were as follows: *the contribution of the project / programme for practice*, *the level of language and professional processing of the project*, and *the formal level of the project* were compared. Furthermore, an assessment of these three items was made in the sense of *the overall assessment of the concept of the student project* (Table 1).

Table 1

### Average values of assessment of the level of conception and completeness of student projects

Form of study	Academic year	Number of project assessment reviews	Contribution of the project / programme for practice	Level of language and professional processing	Formal level of the project	Overall assessment of the concept of the student project
			(1-the best, 4-the worst design of the project)			
Full-time students	2013-2014	27	1.41	1.44	1.59	1.48
Part-time students	2013-2014	29	1.38	1.41	1.52	1.44
Full-time students	2014-2015	39	1.38	1.59	1.64	1.54
Part-time students	2014-2015	23	1.35	1.43	1.65	1.48
Full-time students	2015-2016	29	1.66	1.55	1.69	1.63
Part-time students	2015-2016	23	1.29	1.42	1.29	1.33

It was found out in the analysis of the three items concerned that besides a comparison that was identical for both full-time and part-time students (the contribution of the project / programme for practice), part-time students were better assessed than full-time students. This means that in most cases, namely in 6 comparisons out of 8 (i.e. 75 %), the part-time students have better competencies to design the project.

The item analysing *the contribution of the project / programme for practice* clearly demonstrates the greater experience of part-time students because their projects were often tailored to the environment in which the students work. Full-time students do not have this experience, or they have it but to a much lesser extent, therefore their projects appear to be a practicing of the design of the project rather than a practical implementation of the project in the real life. Overall, however, it can be argued that in the vast majority of cases, this item reached the best evaluation of all the observed items. This may be because the project is based on practice and at the same time the practice can be influenced by such projects. It is positive that students perceive the sense of practice and see the connection of theoretical knowledge in practice.

The item related to *the level of language and professional processing of the project* is again related to the experience of the respondents of the part-time form of study. It can therefore be argued that those students use specific vocational and technical terms commonly in their practice and that they have a better fixation of their use. Language processing is also reflected in broader vocabulary, as the process of communication in a corporate environment of their workplaces provides a greater likelihood of the use of such a language. On the contrary, full-time students have fewer vocabulary and communication

capabilities that are directly related to project management. The differences between the two groups of respondents (full-time and part-time students) are not very significant (several tenths only), but they are traceable in the results of individual evaluations.

When analyzing the assessments (average values) of the item dealing with *the formal level of the project*, the part-time students again achieved (with the exception of one academic year) better results compared to full-time students. Although this item may also be affected by respondents' time options, i.e. by the lack of time to respect the rules of the formal design of the project. On the other hand, students in the part-time form of study showed a higher responsibility for assigning the design of the project according to the given instructions. The results of differences between the two groups are therefore not clear in the sense of which group has what causes that led to these results. In other words, this item shows that there may be a lot of causes and it cannot be clearly determined that it is the impact of part-time or full-time studies. The results often depend also on the nature of the respondent and on their approach to studies.

In addition, when looking at *the overall assessment of the concept of the student project* it is evident that students of part-time studies in all three examined academic years achieved better results than students of full-time study programmes, although the average values between these groups differ only in the order of tenths.

## Conclusions

The aim of the Bachelor field of study "Guidance in Vocational Education" of the Institute of Education and Communication of the Czech University of Life Sciences Prague is to develop the competencies of the graduates to perform their professional and managerial activities in the field of lifelong and further vocational education.

- In any case, when analysing items of review assessments of student projects examining completeness of designs of lifelong learning programmes it has been shown that students of the last years of Bachelor degree programmes are able to project education programmes of varying scope and for different target groups.
- Furthermore, it has been demonstrated for the three-year observed period, regardless of examining possible causes, that the students of part-time forms of study achieved better results in projecting designs of lifelong learning programmes compared to the groups of students of the full-time studies. As significant and anticipated can be considered mainly the item of the contribution of the project (programme) for practice.
- The item of the contribution of the project (programme) for practice can be considered as the best one when looking at the overall results.
- On the basis of the average values of each of the monitored items, the authors were convinced of the importance of the courses that are the part of the study programme concerned and of the benefits of professional practice in the last stage of study, where the students acquire new experience and, on the other hand, they can apply their theoretical knowledge, skills and professional competencies.
- However, in the future, it will be necessary to analyse the presented student projects in qualitative terms, focusing on the content of the projects and on the particular deficiencies that students make in the design of their projects.

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## External Evaluation at a High School in Cambodia and Teachers' Competency to Educate

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**Abstract:** Cambodia is one of the poorest countries in Asia. As regards education, the lack of appropriate training of skills at schools, poor quality of teaching, gaps in teacher education and high student drop-out rates have produced a generation of young people with limited readiness of their work skills and efficiency in the workplace. Public education is therefore viewed as a critical component of the national recovery. The paper presents a partial activity of the project “Enhancement of Technical Education in Cambodia” which was implemented within the Czech Development Cooperation during the years 2015-2017. Specifically, the partial activity running in February 2016 concerned external evaluation of the quality of teaching of vocational subjects at a particular high school in rural Cambodia. The purpose of the external evaluation was to know the status and level of the work of teachers in the teaching of vocational subjects through inspection activities, it means by observation of teaching, and also to provide teachers with a relevant feedback. It can be concluded for the eight assessed teachers of vocational subjects that the basic skills of the teacher are guaranteed, and it can be argued that the teachers achieve so-called pedagogical minimum for teaching. However, there are still aspects of their further pedagogical development. Based on this, the authors want to highlight the significance of development cooperation projects.

**Keywords:** External evaluation, observation, vocational education, educational process, Cambodia.

### Introduction

Cambodia is one of the poorest countries in Asia. As a result of continued rapid economic growth over the past several years the World Bank formally reclassified Cambodia as a lower middle-income country in 2016. But still the long-term economic development remains a frightening challenge inhibited by corruption, limited human resources, high income inequality, and poor job prospects (Central Intelligence Agency, 2017). The majority of the population is engaged in the agriculture sector and just the poorly prepared labour force is increasingly identified as one of Cambodia's major challenges (USAID, 2017).

As regards the historical development of education, traditional Cambodian education took place in the Wats (Buddhist monasteries) and was offered exclusively to the male population. This was gradually changed when Cambodia was a French colony (1863-1953). The French introduced a formal education system influenced by a Western educational model. During the following civil wars and during the Red Khmer regime (1970s) the education system suffered a chronic crisis and was completely destroyed. Between 1980s and 1990s, education was reconstructed from almost “nothing” and has been gradually developed until now (BOOKBRIDGE Foundation, 2012), however the country still faces significant gaps in education at all levels (USAID, 2017). Particularly in the poor countryside the population lacks education and productive skills (Central Intelligence Agency, 2017). With regard to the above-mentioned, J. H. Marshall (Marshall et al., 2009) state that expanding public education is viewed as a critical component of the government's strategy for national recovery, and the steady growth in school participation in Cambodia. This is in line with the statement of C. Chen, P. Sok and K. Sok (2007) saying that education plays a very important role to help facilitate the country's strategic development plans for integrating itself into the regional and international economies and for reducing the poverty of its people. In view of the real-life issues relating to the economic, educational and socio-cultural exposure of young people in Cambodia, both national and international education policies have recently shown their growing interest in vocational education (Cheng, 2010).

Looking closer to quality of education and teachers' competency in Cambodia, according to P. Chankea (2014) ensuring the quality of education requires competent teachers since a competent teacher is an indispensable pillar for students' learning outcome and education quality improvement. In 2011 and 2012, Cambodian Ministry of Education, Youth and Sport (MoEYS) indicated teachers' low academic

level of education and teaching staff without pedagogical training. And, there were reported even teachers who had not finished primary school level (Chankea, 2014). Also C. Chen, P. Sok and K. Sok (2007) point out that teacher's quality in Cambodia including qualifications, teaching methods, and teaching and research experiences are poor. Teacher training education is one of the components of the educational system. Thus, a positive finding is that Cambodian teachers are aware of their crucial profession and they further desire to upgrade their capacity by means of continuous professional development through in-service training programmes (Chankea, 2014). The importance of pedagogical education has been clearly demonstrated by many authors, such as for example by L. Smekalova, K. Nemejc and M. Slavik (2017), who found certain difficulties regarding didactic competence in teachers with no pedagogical training. The didactic competence itself can be described as the amount of didactic abilities, skills, knowledge and experience necessary for adequate didactic analysis, transformation, transfer and internalization of the curriculum to learners (Smekalova, 2007). The quality of education and the degree of preparedness of teachers in Cambodia is affected by many factors. For example, the 2013 UN Development Program's Human Development Report (Malik, 2013) concluded that Cambodian teachers were significantly underpaid and spending little time in the classroom to work outside the school to supplement their low teaching salaries. Most classrooms were under-equipped and lacked proper teaching materials. Inadequate funding for the education system resulted in poor quality education and high student dropout rates, especially in rural areas where parents cannot afford costs related to education and families often require children to help at home with household tasks and field work (Education UNICEF, 2012). Growing class sizes and more poor students matriculating make for a troubling scenario of high participation and low achievement, nevertheless, according to J. H. Marshall (Marshall et al., 2009) poverty alone is not the determinant factor of effective teaching in Cambodia. Likewise, teachers are overloaded which leads to not having enough time to prepare for their teaching. This reason also could lead to teacher's lack of motivation and commitment to teach and student's lack of motivation to learn (Chen, Sok, Sok, 2007). Overall, as a result, the lack of comprehensive relevant training of skills at schools, poor quality of instruction, gaps in teacher deployment and high student drop-out rates has produced a generation of youth with limited readiness of their work skills and workplace capacity (Education UNICEF, 2012).

To produce teachers who actively engage their students in learning, are effective at explaining content and accountable for meeting basic standards of performance, principals and other ministry personnel must do more to identify areas where teachers need help, design support mechanisms to provide training and professional development tailored to these needs (Marshall et al., 2009). Over the last years, Cambodia has built nearly 1,000 new schools and has invested significant resources to expand access to a quality education (USAID, 2017). The vision of the Ministry of Education, Youth and Sport of Cambodia is to establish and develop human resources of the very highest quality and ethics in order to develop a knowledge-based society. By setting educational policies, the immediate objective of the Ministry is to ensure that all Cambodian children and youth have equal opportunity to access quality education (Policy 1 and 2) consistent with the Constitution and the Royal Government's commitment to the United Nations Child Rights Convention, regardless of social status, geography, ethnicity, religion, language, gender and physical form, and according to Policy 3 to ensure effective leadership and management of education staff at all levels (Ministry of Education..., 2017).

As it is evident from the facts presented, quality is becoming a priority in education. Searching and discovering instruments to ensure and measure the quality of education belongs, in addition to the others, to the tasks of evaluation in education (Smekalova, Nemejc, 2016). International researches on quality and efficiency in education have shown that teacher's work is an important factor of efficiency. The main components that influence the effectiveness of the work of teachers are: assessment and evaluation, the quality of teaching (comprehensibility of teaching, competency to educate, support of active learning), long-term planning, classroom environment (classroom climate, classroom management), and professionalism (knowledge of the field and didactic knowledge of the field, pedagogical knowledge, ability of self-reflection) (Prucha, 2009).

In the years 2015-2017, selected departments of the Czech University of Life Sciences Prague were involved in the project called "Enhancement of Technical Education in Cambodia" which was implemented within the Czech Development Cooperation. The main aims of the project consisted of improvement of quality of vocational education in rural areas of Cambodia, strengthening the capacity

of teachers of vocational subjects (training, workshops, seminars, examples of good practice, et cetera), material support of the school, innovative approaches in selected areas (crop production, animal husbandry, processing of agricultural products, and electricity), know-how transfer among Czech and Cambodian experts, and a study visit of Cambodian teachers to the Czech Republic to demonstrate examples of good practice.

The paper is focused on the partial activity of the project (“the improvement of quality of vocational education”), namely on the external evaluation of the quality of teaching of vocational subjects at a particular school in Cambodia (King Norodom Sihamoni General and Technical High School), Kompong Chhang Province, carried out by independent professionals, who are not the staff of the evaluated facility. Specifically, the purpose of the external evaluation was to know the status and level of the work of teachers in the teaching of vocational subjects through inspection activities, thus by observation of teaching, and also to provide teachers with a relevant feedback.

### Methodology

The aim of the external evaluation was *to know and analyse the status and level of pedagogical work of teachers in teaching of vocational subjects with respect to their competency to educate, to formulate records on the inspection of classes, and to provide teachers with feedback and recommendations for their future pedagogical work.*

*Comprehensive inspection (observation in the classroom)* was chosen as the most appropriate tool for the design of external evaluation since it covers all aspects of the educational process and allows direct monitoring of educational activities as described methodologically by I. Miller and K. Nemejc (2014). Structured observations of the theoretical lessons using protocols (named “Theoretical Lesson Observation Form”, hereinafter “the Form”) covering the necessary aspects of teaching were carried out in teachers of vocational subjects at King Norodom Sihamoni General and Technical High School, Kompong Chhang Province, Cambodia, from February 2 to February 16, 2016. The tool was dealt mainly in terms of mutual understanding of all those entities involved in possible improving the quality of direct teaching and learning, not purely as a tool of checking.

The Form was made up of 21 items that were, based on pedagogical theories, sorted into four clusters typical in education:

- *pedagogical aspect* of teaching (seven items) - e.g. the use of interdisciplinary relations, quality of verbal expression of the teacher, quality of nonverbal expression of the teacher, preparation of teaching aids and technology;
- *didactical aspect* (seven items) - e.g. correct terminology, the use of adequate teaching methods, support of independent and creative thinking;
- *interactive aspect* (three items) - e.g. space for discussions and experience of the students, activation of students and keeping their attention;
- *managerial aspect* (four items) - e.g. beginning of the lesson (introduction), time management of the lesson.

The structure of the Form was used by researchers (observers) to record notes and scores in the lessons concerned, and it was used in English. Each of the items of the Form was scored on the scale of 4 (the best rating - excellent) to 1 (the worst rating - inadequate), and so it was possible to calculate average values for items and for clusters. An interpreter was present in each of the lessons concerned, and he simultaneously translated from Khmer into English.

*The research sample* consisted of eight teachers of vocational subjects (two specializing in electricity, six teachers in agronomy, i.e. crop production, animal husbandry, and processing of agricultural products), which means that two Electricity lessons (one lesson per one teacher) and six Agronomy lessons were under observations. Each of the visited theoretical lessons lasted 60 minutes. On average, 32 students attended each of the lessons.

After each lesson, a protocol was created and translated into Khmer, based on “Theoretical Lesson Observation Form”, interview with the particular teacher and mapping of the learning environment. The protocol was passed to each of the teachers individually, with a discussion focused on the analysis of

the current status of teacher's competencies and recommendations for possible improvement of future teacher's work. Again, the interpreter was present.

The collected data were analyzed using the average of the values per scale for each item under investigation. Subsequently, the averages for each of the four aspects (clusters typical in education) and for the teachers were calculated. Results for individual items could also be compared among the teachers under observation.

### Results and Discussion

From the observations made in lessons of eight teachers of vocational subjects in order to know and analyse the status and level of their pedagogical work, the following findings are the results for the individual items surveyed as well as for the clusters typical in education (Table 1). The results represent subjective views of the researchers (observers).

Table 1

Average values of observed items and clusters for teachers of vocational subjects

Observed item no.	Cluster relevant to the item	Average per item (1-min, 4-max)	Total average per cluster (1-min, 4-max)
1	<b>Pedagogical aspect</b>	2.75	2.89
2		1.13	
3		2.50	
4		3.00	
5		3.88	
6		3.00	
7		4.00	
8	<b>Didactical aspect</b>	1.38	2.71
9		2.13	
10		3.25	
11		2.88	
12		2.75	
13		3.88	
14		2.75	
15	<b>Interactive aspect</b>	3.00	3.04
16		3.00	
17		3.13	
18	<b>Managerial aspect</b>	2.38	2.53
19		2.25	
20		3.00	
21		2.50	

As for the clusters, the results in the Table 1 show that the first place is occupied by so-called *interactive aspect*. The socio-cultural environment seems to play a role here. The teacher has not only authority (which is evident from the discipline in the classroom), but it can be argued that the environment is more pleasant, more positive, and the pupils are not afraid to communicate with teachers, when they are asked. It is not possible to determine which of the items is more preferred in the score, but the highest average score in this cluster is achieved by the item no. 17 "positive attitude towards the students". At the second position, there is the *pedagogical aspect*. A higher score is also achieved, especially with emphasis on the "verbal" and "non-verbal communication" of the teachers concerned and on "the accordance with the curriculum of the course" (items no. 5, 6, 7, respectively). However, by contrast, the biggest weakness of this cluster is the item no. 2 "the use of interdisciplinary relationships", followed immediately by item no. 3 "proper preparation of teaching aids and educational technologies and their effective use". The *didactic aspect* can be found in the third place. Within this cluster, some relatively negative ratings were reached by two items, namely by no. 8 ("clear formulation of the educational

aim”) and no. 9 (“motivation to the topic / lesson”). Just these two didactic categories are crucial to the didactic aspect of education. On the other hand, “the use of adequate teaching methods” (no. 11) achieved a positive rating within the cluster. It is clear, therefore, that the use of methods is well known in the didactic process, but the aims and motivations are often forgotten, as teachers often consider them to be automatic. Through their view, students want to learn and there is no need to put effort on their motivation and from the topic and focus of the lesson it is obvious what they are going to learn and therefore teachers do not formulate and emphasize educational aims. So far mentioned is then reflected in the next cluster. The *managerial aspect* is the fourth in the ranking based on the results. All the previous items indicated that the managerial aspect would be the worst in the evaluation. The management of the learning process requires the interconnection of all these clusters - didactics and aims are related to the introduction and feedback, setting of the motivation is related to a flexible time course. Here, relationship of teachers to students is reflected the worst in the item no. 19 (“objective assessment of student performance”).

It is interesting to look at the teachers from the perspective of *individual items*. These in themselves refer to the strongest and weakest aspects of the topic, thus the assessment criterion for a given educational process across all of the observed clusters. Items that were given the average score of 3.25 or more are those that clearly define so-called “hard skills” - the “given curriculum” (item no. 7) that teachers follow within the accredited study programme. This is linked to the item no. 13, where “teachers use the correct terminology for their field” (which points to their expertise). The terminology is related to “the way of expressions” (item no. 5). In other words, teachers use adequate vocabulary and means of speaking, and it is closely related to the presentation of the educational content as regards the division of the subject into smaller topics as well as the factual statements. In this area, the basic skills of the teacher are guaranteed, and it can be argued that teachers achieve so-called pedagogical minimum for teaching.

The presented findings relate to all teachers in whose lessons observations were conducted within external evaluation of teaching and learning. A specific view of the positive and negative findings in the work of teachers of vocational subjects based on observations of their teaching is provided in Table 2.

Table 2

### An overview of positive and negative actions of teachers of vocational subjects in their lessons

Teacher no. (course) / Average value per teacher	Positive findings	Negative findings
1 (Electricity) / 2.57	Visualisation of the lesson content (the blackboard), interaction and activation of students, terminologically correct and accurate expressions (showing the teacher’s expertise), the subject matter is presented in accordance with the curriculum.	A clear formulation of the aim of the lesson missing, inefficient group work (waste of time), no precise instructions what to do, very few practical examples to support the theory, there is no use of interdisciplinary relationships, poor closure of the lesson.
2 (Agronomy) / 2.86	The subject matter is presented in accordance with the curriculum, effective and correct presentation of the curriculum (the content), terminologically correct and accurate expressions (teacher’s expertise), the quality of verbal and written communication, groups are monitored, activation of the students, clarification of the awareness of the students, final revision of the new subject matter.	The lack of clear formulation of the educational aim, visual materials such as photos / pictures would be appropriate to the topic, some students are not fully involved in the activity, inadequate use of interdisciplinary relationships.
3 (Agronomy) / 2.81	Revision of previous lesson, instructions during the whole lesson (what to do, what is important ...), use of the textbook, eye contact, practical examples, terminologically correct and accurate expressions (teacher’s expertise), the quality of verbal and written communication, the subject matter is presented in accordance with the curriculum.	Without a clear formulation of the aim of the lesson, monitoring - enter the whole classroom (not to be so static), very dirty whiteboard, to show the whole class and clearly, the teacher acts unnaturally and nervously, without the use of interdisciplinary relations.

Teacher no. (course) / Average value per teacher	Positive findings	Negative findings
4 (Electricity) / 2.62	Theory and practice (adequate examples from the real life), effective and correct presentation of the curriculum (the content), the quality of verbal and written communication, the subject matter is presented in accordance with the curriculum.	Ten minutes late arrival to the classroom, without formulation of the aim, unplanned lesson structure, no feedback to the students, not so clear explanations in some moments (reaction in the classroom), not all students cooperate with the teacher, poor preparation of teaching aids and technologies, closure of the lesson not adequate.
5 (Agronomy) / 2.95	Revision at the beginning, clear notes on the whiteboard (logical structure), proper use of the textbook, feedback, students cooperate, clear explanations, effective and correct presentation of the curriculum, support for independent and creative thinking, terminologically correct and accurate expressions (professionalism), the quality of verbal and written communication, the subject matter presented in accordance with the curriculum.	Without a clear formulation of the aim of the lesson, no use of interdisciplinary relations, poor lesson closure.
6 (Agronomy) / 3.24	Introduction, a brief lesson plan, clear and understandable educational aim, revision of the previous lesson, entry in the classroom, student activation, group work, not only information from the textbooks (additional information), 55 students and still she manages the class well, continuous instructions (take the notes ...), she monitors all the students, effective and correct presentation of the curriculum (the content), support for independent and creative thinking, quality preparation of teaching aids and their efficient use, positive approach to students, terminologically correct and accurate expressions (teacher's expertise), the quality of verbal and written communication, the content presented in accordance with the curriculum.	The motivation for the topic could be better, inadequate use of interdisciplinary relationships, insufficient assessment of the performance of individual students, poor closure of the lesson (not just say bye bye).
7 (Agronomy) / 2.62	Visualization of the curriculum on the blackboard, terminologically correct and accurate expressions (teacher's expertise), the quality of verbal and written communication, the subject matter is presented in accordance with the curriculum.	Revision of the previous topic too short, poor introduction of the new topic, without educational aims, no clear explanations and convenient examples, no feedback, without interdisciplinary relationships, he failed to repeat the new subject matter, poor closure of the lesson.
8 (Agronomy) / 2.62	Terminologically correct and accurate expressions (professionalism), the quality of verbal and written communication, the subject matter is presented in accordance with the curriculum.	No introduction into the lesson, without clear formulation of aims, no instructions and lesson plan, some of the students did not pay attention, without sufficient activation of students, poor preparation of the data projector (time consuming), no interdisciplinary relations, poor closure (only bye bye, no summary ...).

If the eight teachers can be compared among themselves, then only one of them reached an average rating of the monitored items higher than 3 (specifically 3.24). Other teachers are around the average rating of 2 and 3. As far as the score is concerned, only one teacher achieved in her education up to  $\frac{3}{4}$  of teacher skills with a value higher or equal to 3 points. In this respect, the scale 1-4 is divided into 2 halves

where 1-2 is a weak rating and 3-4 is a strong rating. Then, 1/8 of the surveyed teachers (i.e. 12.5 %) are at the top level in pedagogical skills. There is a clear need for the teachers to undergo lifelong learning and to complement their skills in the given areas, it means in the items analyzed above.

## Conclusions

The results of the external evaluation conducted at a particular school in Cambodia within one of the partial activities of the project called “Enhancement of Technical Education in Cambodia” which was implemented within the Czech Development Cooperation, showed that:

- of the four monitored clusters, the supervised teachers performed best in the area of interactive aspect, the managerial aspect was the fourth in the ranking;
- the items that have reached the best evaluation for the clusters concerned “positive attitude of teachers towards the students”, “verbal” and “non-verbal communication”, “the accordance of the topic with the curriculum of the course” and “the use of adequate teaching methods”;
- the worst ranking was given to the following items: “the use of interdisciplinary relationships”, “proper preparation of teaching aids and educational technologies and their effective use”, “clear formulation of the educational aim”, “motivation to the topic / lesson” and “objective assessment of student performance”;
- generally, it can be concluded for the eight assessed teachers of vocational subjects that the basic skills of the teacher are guaranteed, and it can be argued that the teachers achieve so-called pedagogical minimum for teaching;
- only one of the surveyed teachers reached an average rating of the monitored items higher than 3 and she is at the top level in pedagogical skills;
- based on the results of observations, interviews with teachers, workshops and the mapping of conditions and environments for education, to enhance the quality of vocational education there is a strong need for the teachers to undergo lifelong learning, to complement their skills in the given areas, and to pass on their knowledge and examples of best practice to their colleagues. Special consideration should be focused on practical classes. Fortunately, the effort and motivation of the teachers to improve was evident.

Overall, the importance of developmental cooperation and significance of dissemination of expertise was confirmed by the researchers. It can be argued that often it is enough to show the direction through examples of good practice and provide relevant feedback. In rural areas, education is not always about poverty and poor access as it is referred to it, but it is also about the human factor, about the conviction and the willingness to do whatever honestly.

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## An Innovative Pedagogical Design of Intercultural Competence Development in Music Teacher Education

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**Abstract:** This is the second part of the longitudinal inquiry, which serves as basis revealing peculiarities of developing intercultural competence of prospective music teachers at university. The article discusses the results of the action research. The action research aimed to define and (practically) verify the strategies as well as methods of the (self-) development of intercultural competence. The aforementioned competence is particularly significant to prospective music teachers considering current changes in global society and perception of culture and educational environment. The long-term action research was conducted in the period of 2014-2017 and the sample of the research included 60 foreign Master's degree students, who chose studies at Lithuanian University of Educational Sciences (Music Education). The focus group discussion with participants in the process of education, music teacher educators, was used to analyse the research results. It showed that a highly significant role in development of intercultural competence is assigned to a higher education institution and internationalisation of a study programme. A targeted intercultural education is becoming a significant factor of intercultural competence improvement. The study confirmed that the strategies of the (self-) development of intercultural competence of prospective music teachers are efficient and successfully applicable in organising the (self-) development of intercultural competence of foreign students. The revealed educational preconditions make the basis for the development of intercultural competence of prospective music teachers. This study can be of interest to other researchers to further explore the possibilities of intercultural competence development at university.

**Keywords:** intercultural competence, pedagogical design, music teacher, university education.

### Introduction

The concept of interculturalism stresses dynamic aspects of communication and actions of cultures; it not only states the situation but also suggests methods and strategy for the future action (Lustig, Koester, 2017). The developed intercultural competence would enable the person, first of all, to grasp the core of his/her national identity, become open and curious about other cultures, able to recognize the manifestations of behaviour based on the limits of other cultures, discover cultural commonalities and differences, and, second, shift the attitudes from ethnocentric points of view towards the ability to see the reality from the others' perspectives (Deardorff, 2015). However, it is rather complicated to transfer the criteria describing the intercultural competence from the theoretical level to practice (Danescu, 2015; Nolan, Hunter, 2012).

There are many questions about the methods of teaching intercultural competences. There are, however, different opinions as to what the best methods of enhancing intercultural competence might be (Catalano, 2014; Soboleva, Obdalova, 2014). According to the researchers, the more varied conditions for students' integration into another culture are established, the better their intercultural competence is developed. However, in the context of real interactions positive learning outcomes alone are not ensured without applying special educational methods and techniques (Navaitiene, Racelyte, Rimkeviciene, 2015; Bednarz, Leoni, 2010).

K. Cushner (2009, 158), who investigated the efficiency of the period of prospective teachers' studies abroad, states that one of the ways to help teachers understand what challenges they are going to face while teaching the young generation in the global age, is to implement carefully structured study programmes that provide learners with intercultural experience. Students of such study programmes are forced to integrate into another culture and to apply the obtained knowledge in practice. Such method of teaching/learning consolidates intercultural and international awareness of prospective teachers and develops their intercultural competence (Chodzkiene, Barkauskaite, 2015).

According to researchers, the constructivist paradigm and the applied strategies of experiential learning, problem-based learning, collaborative learning, reflexive learning and cognitive learning should be prioritised in the development of intercultural competence (Rawlings, 2016; Pasquale, 2015). Activating educational methods (critical incidents, simulation games, scenarios, teamwork, reflective diaries) establish possibilities for better engagement of students into the process of education and favourable educational conditions for creating an intercultural dialogue in the real multicultural society. According to

E. Zylkiewicz-Plonska and E. Aciene (2014), the teacher's role in the process of intercultural communication is of dualistic character: to help a student abroad (mediator, teacher, enabler, consultant) and internationalization at home (ability to organize the process of sharing experience using such methods as distance learning, problem-based learning, service learning, case studies).

It is worth mentioning that the study subject of music is very distinctive and distinguished by specific methods of artistic-musical world cognition. They predetermine peculiarities of (self-) development of intercultural competence. Musical art is considered to be a certain means of language and communication and the meaning of music is associated not only with the individual's personal experience but also with the cultural environment and context. According to P. Marcheva (2016), it is necessary that pedagogic skills of prospective music teachers should be specified so that they could receive adequate preparation in the course of their university education. Sh. VanAlstine (2016) formulated the strategies to challenge prospective teachers' development, and to provide them with some concrete "steps" towards internationalizing the music lessons they were creating and teaching. Having overviewed the strategies for development of intercultural competence, it would be important to identify, which specific pedagogical strategies and methods are most appropriate developing and evaluating intercultural competence of foreign students, prospective music teachers (Lazaro, Martínez, 2017; Arostegui, Ibarretxe, 2016; Palmic, 2013; Koskarov, 2012; Southcott, Joseph, 2010; Addo, 2009).

The following *research questions* determine the general problems analysed in the research: how music has contributed to the development of intercultural competences in music teacher education? What factors and conditions would increase possibilities of (self-) development of intercultural competence of foreign students, prospective music teachers? What are the most effective and efficient pedagogical strategies, educational forms and methods within the process of developing intercultural competence of foreign students at university?

*The aim of the study* is to identify and verify the most important pedagogical strategies for the (self-) development of the intercultural competence of foreign students, prospective music teachers at university.

## Methodology

### *Action research in intercultural competence development*

During the action research attempts were made to reveal the influence of targeted intercultural education on improvement of their intercultural competence and to prepare methodological (technological) framework for educational activities.

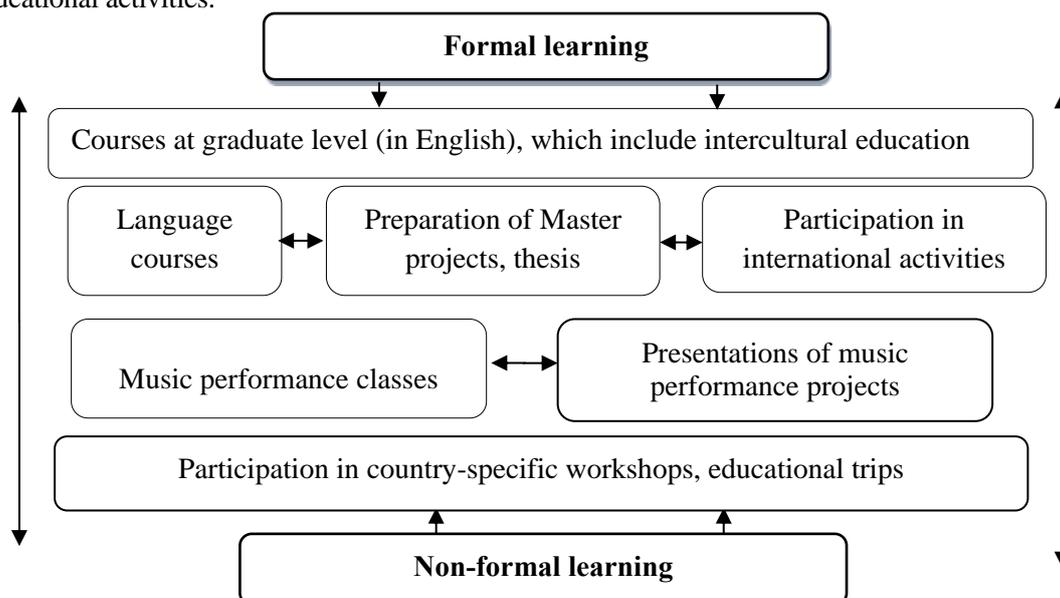


Figure 1. The structure of the intercultural education program (compiled by the author).

The action research enabled the author to constantly observe acquisition of intercultural competences "from inside", together with other teacher educators to analyse and reflect possibilities of using various strategies

and methods of intercultural education and evaluation, to formulate themes and to design assessment tasks as well as to evaluate an educational effect received not only during the action research but in other non-formal education activities. Being one of the music teacher educators in the study programme of Music Education, the author of this article initiated and implemented short-term (3-4 months or one university term) music performance projects (Lasauskiene, 2017).

A complex *Intercultural education program* was designed to provide its participants (foreign students) with an opportunity to combine the theoretical part of the program with the practical one. The *Intercultural education program* structure is visualized in the figure 1 and is explained in some detail below (Figure 1).

Determining the content of the action research, the following was taken into consideration:

- *all Master-level modules* (in English) that include intercultural education (“Variety of World Musical Cultures”; “Cultural and Social Discourses of Music Education”; “Lithuanian Ethnic Music in the Context of World Cultures” and others), which created favourable conditions for acquiring knowledge of Lithuanian history and culture, intercultural communication principles, peculiarities of education systems and educational methods;
- *intensive language courses* (English and Lithuanian), where the students acquired basic knowledge and skills of the language. Seeking to attain higher academic results and to join the new culture, linguistic competence becomes essential. Furthermore, the foreign students are encouraged to form language-tandems with Lithuanian and other international students;
- *preparation of Master projects and thesis*, which created conditions for acquisition of researcher competences. Teachers’ research competence is one of the main aspects of concern in teacher education on Master’s level. Music teacher education is interdisciplinary studies which combine two areas (music and education), therefore research becomes a complex process requiring competence to use artistic expression forms and methods of social sciences research (Baneviciute, Kudinoviene, 2017);
- *participation in international projects of Erasmus+ and Nordplus Higher Education* (“Teacher Education” and “Music Education”) and international scientific conferences, which established conditions for gaining knowledge of various programs of international scientific cooperation, research culture in Lithuania and abroad, what enabled foreign students to join a team of more experienced researchers, to communicate and collaborate with university teachers and students from other countries;
- *the programme of the study module of “Music Expression”* (Piano, Singing, Choral conducting) (in English), which enabled students to expand their knowledge of Lithuanian and world musical cultures, theories and practices of music interpretation, traditions of teaching/learning methods, to realise own creative powers as well as to apply musical abilities and skills;
- *presentations of music performance projects* “World music” and “Intercultural Dialogue. Different Cultures – One World”, which established favourable conditions for linking studies in music and culture, for comparison different musical cultures from intercultural perspectives, for improvement of musical (subject-specific) competences as well as induced students’ self-involvement in musical project activities (Lasauskiene, 2017);
- *participation in country-specific workshops, educational trips* on the history of Lithuania, culture, visiting the main objects in Lithuania included into the cultural heritage, organising and participating in the national evenings, observation festivities, sightseeing trips that allow to analyse, understand and interpret different cultural context, to compare the host country with the native one, to discover similarities and differences. Students have a chance to fully engage in the life at university, and to join arts or other activities.

The strengths of the intercultural education program are: a) it consists of all Master-level modules, which comprise the curriculum of the Master degree programme in Music Education; b) it provides continuous and systematic accompanying measures over a long period of time (2-year Master studies abroad); c) it uses an innovative, learner-centred pedagogical design that combines individual and cooperative learning and applies – among others – experiential and reflective learning as well as the musical project activities and presentations of music performance projects (Lasauskiene, 2017; Dehmel, Li, Sloane, 2011). The program’s value lies in its ability to provide teacher educators with innovative activities they can use in their own teacher education courses (Catalano, 2014).

*Participants.* The sample of the research embraced of 60 foreign (Chinese) Master's degree students, who had chosen studies at Lithuanian University of Educational Sciences (Music Education) (Table 1). The duration of foreign students' academic experience differs: from two semesters (students enrolled in 2016/2017 academic year) to four semesters (students studied or have been studying in the academic years of 2014-2016 or 2015-2017).

Table 1

**Participants (n)**

<b>Foreign student group</b>	<b>Number of students</b>	<b>Presentations of projects</b>	<b>International activities</b>
Group 1 2014/2016	24	10	3
Group 2 2015/2017	14	6	-
Group 3 2016/2017	22	12	1
<b>Total</b>	<b>60</b>	<b>28</b>	<b>4</b>

Table 1 shows that only half of the foreign students (n=28) prepared and implemented music performance projects because not all the university teachers-initiated project activities and presentations of music performance projects. Only several foreign students participated in activities of international projects and conferences (due to insufficient foreign language skills and limited financial capacities of the university).

The sample of experts consisted of 13 music educators teaching in the study programme of Music Education implemented in Lithuanian University of Educational Sciences. There were 9 women and 4 men, who had a range of teaching experience from 10 to 28 years.

*Data collection and data analysis.* One qualitative case research using focus group discussion with participants in the process of education and music teacher educators was employed to analyse the efficiency of strategies, methods and forms of development of foreign students' intercultural competence as well as to assess the results (Thomas, 2014).

The focus group discussion was used as a method, which may embrace a bigger number of informants' responses and reflect as broad as possible range of attitudes to advantages and disadvantages of educating intercultural competence in a higher education institution. The focus group was applied as an independent research method seeking to reveal how a teacher understands and assumes the essence of the problem, its perspectives, how differences in attitudes are handled and agreement is reached. The focus group was formed planning and conducting the action research, projects (discussion of results) in the beginning and the end of each semester. The discussion lasted 1-1.5 hours. The received data were processed applying the method of descriptive content analysis (Silverman, 2013).

Individual reflective diary (Bednarz, Leoni, 2010) was chosen as intercultural competences assessment method in order to identify the students' intercultural competence expression tendencies through their reflections. Completing a portfolio of intercultural competence was one of the important tasks learning the study modules (at the beginning and the end of every course).

## **Results and Discussion**

### *Analysis of focus group discussions*

Generalising the results of the action research it can be stated that through different activities various situations are modelled, where the main focus is laid on the development of intercultural competence and which promote expression of foreign students' intercultural competence. The activities pre-planned by the university teachers supplemented each other and were interwoven. The most successful activities were observed in the situations, where the educators had foreseen a clear goal, specific and measurable objectives, had thought over educational methods and activity observation (evaluation, self-evaluation, reflection).

Analysing the process of the action research, the discussions with the teacher educators revealed the opinion that targeted development of intercultural competence can be implemented in the programme of any study module (not only in music education) as well as during other activities of formal and non-formal education. During theoretical lectures, seminars and practicums of various study modules, according to the educators, the abilities "to analyse and adequately understand different cultural

contexts”, “to discover similarities and differences in cultures“, “to interpret and compare cultural phenomena“, “to flexibly react to new situations that occur due to cultural diversity“, as well as “to apply new knowledge in real situation” are developed.

During the action research reflections, self-evaluation and evaluation of students’ intercultural competence were foreseen. Some educators followed the agreement, whereas the others did it only partially, i.e. they organised educational activities but did not assign a big significance to self-evaluation and evaluation of intercultural competence. The discussions with university lecturers revealed spontaneous and intuitive application of individual student reflections and other methods encouraging reflection without dedicating specific time for this activity in the study process. Group reflection, as a means that promotes reflective teaching/learning and serves as foundation for experiential learning embracing various forms of dialogue (debate, discussion), was rarely used during the lectures, seminars and practicums.

The university teachers acknowledged that there is not enough time for reflections and individual communication with each student. Therefore, collaboration and experiential learning are not very common in music teacher educators’ practice: *“The most vivid positive experiences are related to preparation of musical educational projects. This is a good opportunity for students to learn a lot independently. Usually students eagerly engage in musical activities. The methods of “open lesson” and “public concert” were particularly useful in studies of music-related study subjects: the students listen to music compositions interpreted by study colleagues and express their opinion or write a review, present recommendations what and how should be improved. However, international students are not active during lectures and are unwilling to discuss”*.

Following the research data, it can be stated that the university teachers gave the best evaluation of the international students’ knowledge of intercultural competence related to types of cultures and intercultural differences, peculiarities of communication style, specific features of education system and their abilities to compare and interpret cultures. Presenting all the topics in the courses, seminars and music classes, tasks for comparative analysis of Lithuanian and other cultures as well as cultural communities were given to the students asking them to discover information of those issues independently. Performing music, the students were encouraged to get acquainted with information that reveals the country’s cultural and historical context. The history of art plays an irreplaceable role there. The music teacher educators’ statements prove the efficiency of such strategy: *“The international students were not aware of the Lithuanian culture at all. Learning to interpret compositions of Lithuanian composers, the students were surprised and fascinated by wonderful, specific, emotional, spiritual and majestic music created by Lithuanian composers. I think that it was through music and its performance that students got engaged into socio-cultural acquaintance with Lithuania”*.

During the action research the improvement in foreign students’ attitudes, another important element of intercultural competence, was observed. The educators noticed that *“the international students’ critical self-evaluation and evaluation of own competences, openness to innovations (new learning methods, techniques and study subjects”*. Project activities and presentations of projects international students were provided with an opportunity to involve in common activities with other students, whose cultural background is different from theirs. Such intercultural dialogue not only communicating but also acting jointly serves as best foundation for building attitudes of respect and openness and a source of understanding specific cultural information and socio-linguistic awareness.

While conducting the action research, the foreign students had direct contacts with representatives of other cultures (university teachers, professional artists, students from other countries, researchers). Thus, the action research program created opportunities for direct implementation of experiential intercultural learning. The music teacher educators think that *“international students are satisfied professionally and personally after their experience in the Nordplus and Erasmus intensive courses and international scientific conferences”*. However, they also acknowledge the necessity to have more activities and events of this kind: *“It was the first experience of intensive courses like that. Chinese students met a lot of interesting music pedagogy professors from different countries with a different outlook on music education and approach into music as universal language”*. The responses of the teacher educators disclose that not only institutional experience but also any other educational environments outside the university acquire utmost significance developing intercultural competence. Hence, intercultural competence has to be analysed and evaluated not only from the perspective of specific formal teaching/learning.

The conversations with music teacher educators show that a targeted choice of methods that promote students' activity (project assignments, learning through cooperation), foreign students successfully developed their values of "curiosity and desire to discover", "openness" and "responsibility". The foreign students faced certain challenges "reflecting and analysing own activities and those of others, solving related problem-based issues". The educators noticed that the students (Chinese) are "modest", "curious", "diligent", "sincere", sometimes "sentimental" and "not always punctual". Though Chinese students evaluate their foreign language skills rather low, seriously learning students significantly improved their English language skills at the end of their studies: "All the classes are held in English and this is not easy for Chinese students. It is good that they were provided with opportunities to additionally improve English language skills as well as to study Lithuanian".

Generalising it can be stated that the analysed case of development of intercultural competence of prospective music teachers (international Master programme students) is one of several cases in the context of preparing Masters in Education, which facilitates understanding the variety of intercultural competence and possibilities for its development at university. Nurturing intercultural competence of students, prospective music teachers, it is important to envisage broader perspectives for personality education, development of personal and professional values and attitudes.

### Conclusions

- Development of intercultural competence in higher education should embrace nurturance of general, professional and subject-specific competences combining forms of formal, non-formal and informal forms in the process of education. An important role in intercultural competence is assigned to a higher education institution and internationalisation of a study programme not only during lectures, which include intercultural education, but also through presentation and evaluation of independent project activities and presentations of projects. Following the research results, it can be stated that targeted intercultural education of foreign students is becoming a significant factor of intercultural competence development.
- The revealed educational preconditions make the basis for the development of intercultural competence of foreign students, pre-service music teachers and further scientific investigation. The implemented action research can encourage university teachers not only to perceive the process of music teaching and learning as an activity of developing musical skills, but also to envisage more extensive possibilities of the development of prospective teachers' intercultural values.

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## Building Intercultural Competence through Different International Study Programs at University

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**Abstract:** International student programs at higher education level have increasingly been promoted over the past years. Possibilities of studying in different international programs or choosing a big variety of mobility programs have been open for many students. The authors of the article deliver courses to foreign students in different international study programs (student mobility program and study programs at graduate level in a foreign language) in the study programs of Music Education and English Philology implemented at Lithuanian University of Educational Sciences. The aim of the study is to reveal the peculiarities of developing intercultural competence of university students through different international study programs presenting the obtained results. 28 Erasmus+ and 29 other foreign students studying in Lithuanian University of Educational Sciences were included into the sample. The research was conducted applying several methods: analysis of scholarly sources, document analysis, students' written reflections and qualitative content analysis. The results revealed that within development of intercultural competence through different international programs, student motivation (opportunity to study abroad, to learn or improve a foreign language, to form new relationships and to develop personal skills) as well as conditions of educational environment, relationships between the university teachers and students and acquired intercultural experience gain utmost importance. Generally, according to the study results, international university students (more or less) enjoyed their studies in Lithuania regardless of whether they faced any challenges or not. Studies abroad are seen as a priority factor in intercultural competence, which promotes learning of other cultures, confirms the importance of foreign language skills and opens a path to personal and professional development.

**Keywords:** intercultural competence, international study programs, university education.

### Introduction

The tendencies of international development of higher education are best reflected by the constantly increasing demand for higher education and consequently growing international academic mobility. The Academic Mobility Strategy approved by Bucharest Communiqué (The European Higher Education..., 2012) reasserts an ambitious goal to design "mobility windows" in the study programs of the countries of European Higher Education Area and by 2020 to ensure opportunities for all young people of Europe to study at least one semester abroad during their studies. Next to the aims of mobility promotion, the implementation of joint degree and double degree study programs and development of study programs in foreign languages as well as collaboration with other world regions are outlined (European Commission, 2014).

Specific processes, procedures and programs of study internationalisation (student and teacher exchange, international research, language learning) are becoming an ordinary part of activities in contemporary higher education schools (Egroun-Pollak, Hudson, 2014). Under conditions of an increasing demand for higher education, traditionally strong and well-known countries (United States, United Kingdom, Australia, Germany, France) tend to gradually expand their activities in the higher education market. The main aim of this internationalisation in general and study abroad programs in particular is to prepare students for their life in a globalised world.

The ERASMUS (European Region Action Scheme for the Mobility of University Students) program, in general, and the student mobility programs for studies and placements, in particular, have three different aims: they provide an individual with personal experience, but in addition they are meant to have an economic as well as academic impact. International experience is seen as a means of improving skills that are important for employees as well as employers and increase the internationalisation of the higher education institutions (European Commission, 2014). A big variety of types of mobility is available for students: student mobility for studies, language training abroad, other student mobility forms and study exchange programs. Lately about on tenth of EU students have been studying or taking part in internship programs and over 250 thousand of students have participated in Erasmus program.

In the period from 2014 to 2020 non-European countries partners have been and will be taking part in student and staff mobility and the program in question has become even more accessible.

The National Program for Promotion of Lithuanian Higher Education Internationalisation for Period of 2013-2016 (Del aukstojo mokslo..., 2013) singles out the key priorities of internationalisation of Lithuanian higher education. Though the total number of international students in Lithuania has been increasing over the last decade, such students comprise only a small proportion of all the students in the country. Lithuanian University of Educational Sciences is actively involved in international cooperation. Bilateral agreements (international partnerships and projects) have been established with higher education institutions in Europe, Asia and North-America (Lietuvos edukologijos universitetas, 2017). International mobility in the University has been implemented on the basis of more than one hundred bilateral Erasmus+ agreements and other interuniversity cooperation agreements.

A great number and wide variety of research focusing on the intercultural competence has been carried out over the past years (Chodzkiene, Barkauskaite, 2015; Salmona et al., 2015; Gregersen-Hermans, 2014). According to the researchers, a university study abroad program has a significant effect on the development of intercultural competence (Anderson, Lorenz, White, 2016; Salisbury, An, Pascarella, 2013; Vande Berg, Paige, Lou, 2012; Weber Bosley, Lou, 2011). According to M.J. Bennett (2009, 1), "every program, no matter at what level, format, or focus, continues to claim that educational cross-cultural contact contributes to intercultural competence and thus to global citizenship". Internationalisation embraces different cohorts of international students, related policies and practices, professional socialisation (Barton, Hartwig, Cain, 2015), it also includes encouragement of internationalisation in curriculum and application of innovative methods (Leontyeva, Deeva, 2017). The programs for studies abroad aim to generate an increased international awareness and sensibility to other cultures as well as to contribute to personal growth.

*The problem of the research* is formulated as the following research questions: how effective and efficient different international study programs are in promoting intercultural competence development; what factors and conditions would increase possibilities of development of their intercultural competence at university and how do mobility and other foreign students reveal development of their intercultural competence through their educational and personal experiences.

*The aim of the study* is to reveal the peculiarities of developing intercultural competence of university students through different international study programs presenting the research results.

## Methodology

The data were collected on a total of 57 international students in two groups (subsamples): Erasmus+ student mobility for studies and study programs at graduate level in a foreign language.

The first subsample consisted of 28 mobile students (8 men, 20 women) from the universities in Czech Republic, France, Germany, Italy, Latvia, Slovenia, South Korea and Turkey, who chose Erasmus+ program for studies at Lithuanian University of Educational Sciences and enrolled on different teacher education courses (English Philology, Russian Philology, Visual Arts Education, Geography, Psychology, Theatre Education, Music Education).

The second subsample consisted of 29 foreign students (12 men, 17 women) from China and the United States, who chose the study programs of Music Education (Bachelor's or Master's study programs) and enrolled on a specialized music teacher education course (i.e., training a school music teacher).

Within the overall aim of the study, one of specific objective related to possible differences in international study programs, their duration and the national context. The academic experience of mobile and other foreign students, who were selected for the survey, is two university semesters (autumn 2016 and spring 2017).

The study was done applying several **methods**: analysis of scientific sources, document analysis, written student reflections and qualitative content analysis (Silverman, 2016).

The students wrote individual reflections about their studies in Lithuania as responses to the provided open questions: What did you know about Lithuania before the international study program? What most obvious similarities and differences in academic culture (educational environment, student-student relationships, student-university teacher relationships) in Lithuanian University of Educational

Sciences and in your home university have you noticed? Why did you choose Lithuania for your international study program? What was the first or most evident thing (positive or negative) that caused culture shock when you started the international study program in Lithuania? Describe the situations of studying abroad, where you experienced success or failure, positive or negative feelings. What did the studying abroad mean to you personally? With these questions, the goal was to provoke responses that would highlight the students' intercultural skills (Czerwionka, Artamonova, Barbosa, 2014).

The analysis of qualitative data was done through qualitative content analysis (Mayring, 2014). Several subcategories, which were unified by one idea, were grouped into four qualitative categories on theoretical grounds (Table 1).

## Results and Discussion

The conducted content analysis of the responses of international students to open questions of the reflections highlighted the qualitative categories and subcategories – factors influencing intercultural competence of international students (Table 1).

Table 1

**Results of analysis of the international students' written reflections**

Student motivation	Educational environment	Socio-cultural factors	Internal factors
Cognitive motives	Teacher-student relationships	Communicating with people of foreign cultures	Intercultural adaptation
Personal motives	Creation of positive climate	Foreign language skills	Linguistic abilities
Professional motives	Study content and methods	Involvement in socio-cultural activities	Experience in intercultural activities
Influence of teachers, friends	Teacher's competence	Involvement in international activities	Personal qualities

### Student motivation

The individual's motivation is the main precondition for intercultural competence (Anderson, Lorenz, White, 2016). The analysis of the content of written reflections disclosed that the knowledge of Lithuania possessed by mobility and international study abroad programs students before their studies in this country was limited. Nevertheless, the students' opinions were still largely similar: *"I did not know anything about Lithuania"* [a student from Italy]; *"I love geography, but this country was an absolute mystery for me"* [a student from the Czech Republic]. Students from Germany and South Korea recognised that *"Lithuania is not the country I wanted to go to"*; *"Lithuania is definitely not a typical country of destination among Erasmus students"*. It can be assumed that lack of information on Lithuania did not build up an image of a "familiar and attractive" country.

International students considered the opportunities to study abroad, choose the institution and a study program in a foreign language, to learn or improve a foreign language, to meet new people as the most important motives (reasons) for spending a period abroad. Therefore, their arrival for studies was well-reasoned: *"I want to travel and to see European countries"*, *"to learn (experience) their culture"*, *"to meet students from other countries, share new experience with them"*, *"to improve foreign language skills and to study new languages"*. The choice of some students to study in Lithuania was influenced by other people (teachers, friends): *"my friend spent there one year, and he recommended this country to me"*; *"I accepted recommendations from our professor"*. The reflections of the students also contain professional motives of the chosen specialisation (*"have obtained different experiences about two specializations which I study"*).

The motives of Chinese and American students (Music Education) to study in Lithuania were more predetermined by the professional context: *"The profession of a musician is very intercultural. There is a saying that "art is without borders"* [a student from the U.S.]; *"I had a wish to learn European musical culture, peculiarities of the educational system, traditions in universities and schools, to learn foreign languages"* [a student from China]. However, cognitive motives (*"to see this country and travel to other*

countries”) and personal motives (“to do something different in my life”) played the most significant role choosing studies in different international programs.

Choosing a higher education school and a specific study program delivered in a foreign language in Lithuania, a big number of students “checked courses that were offered for studying and noticed that they are similar to the ones at home university”. Another important motive for studies in Lithuania is opportunity to follow different courses that are not available in-home institution. A Czech student pointed out that “Lithuanian University of Educational Sciences offers interesting study subjects for international students and has good references in the Erasmus”. A student from Slovenia was fascinated by the Lithuanian language and culture summer courses: “In these courses you will find out everything you want to know about people (tradition, language, religion), culture and festivals. During the course we were travelling around Lithuania”. But she acknowledges that “Lithuanian is a very difficult language!”.

Students from South Korea added that studies abroad, academic experience, travelling and learning of other cultures would contribute to improvement and widening of their career prospects in the future: “I’m confident that these experiences and learned points will be a good foundation for my future life”.

### Conditions of educational environment

It was determined that intercultural competence was largely affected by the educational factors (Leontyeva, Deeva, 2017). Possessing different academic experience in home institutions, the students were able to compare it with the experience obtained in Lithuania.

Students from the Czech Republic distinguished conditions of educational environment that contributes to development of intercultural competence: “different duration of studies”, “assessment system” and “funding of studies”. A student from Slovenia learning in the study program of art education noticed that “in Slovenia we can study for free and we have more practical courses than here, in Lithuania”. Another student from Turkey noticed that in Lithuania “studying is for students. If they want to learn, they need to do it themselves”.

The reflections of students from South Korea contained fascination and surprise comparing differences in study conditions in Lithuania and their home universities: “I really like the way of studying here. It is totally different from the way in South Korea”. And they explain the reasons for such a difference: “In my home university students just listen to the lecture and never express their opinion and never ask professor anything. In Lithuania, the professor always asks my opinion and I can discuss with other students. So, this way impressed me very much”. It can be considered that formal communication between a teacher-expert and a student-passive listener prevails in some universities of Eastern Asia.

Students from China mentioned that “music teacher educators in Lithuania are interesting, creative and encourage their students also to become the same. According to the students “all this highly motivates for attainment of better academic results”. Evaluating the teacher’s competences, American students emphasised professionalism of music teacher educators in development of intercultural professional competence: “Music teacher educators in Lithuania are highly professional”. Fascination of a Latvian student with a university teacher should be noted as well: “I think that my skills in my speciality now are much better, and for it I should say sincere thanks to my teacher”. However, some European students provided varied opinions and, next to positive evaluations, some critical observations were found: “studies in Lithuania are more school-like, which means teachers give you lots of homework to do” [a student from Germany].

Communication of an educator and a learner is an essential part of the educational interaction. The students of both programs were also surprised and fascinated by creation of positive climate in the classroom, parity-grounded interaction (based on collaboration, dialogue and confidence) and quality feedback developing intercultural competence.

Comparing the academic culture in her home country, a student from Eastern Asia indicated the reasons for insufficient communication with university teachers: “There are so many students (some classes have one hundred students) in my home university. For that reason, we have a difficulty to communicate with professors friendly”. Comparing the experience of study organisation and psychological conditions in home country and Lithuania, her colleague stated that “in Lithuania we can make informal relation

*with a professor and I think it is an important advantage for students". She thinks that "when I come back to my home university, I can communicate with professors more easily".*

A student from Europe pointed out that *"in the Czech Republic we see the teacher only during lectures and seminars but in Lithuania we have meetings and we spend much more time with the teacher. There are professors who are interested in students' opinions, attitudes and moods".* Another student also agreed that such communicability and attention to students is not characteristic of university teachers in their home country (*"In Czech Republic lecturers never do such things<...>nobody cares what we think or how we feel"*) and concluded that *"lecturers have a communication barrier".* The educators' informal communication was positively evaluated by a Slovenian student: *"almost all the professors gave me their phone numbers which was really strange for me".*

"Friendliness" was one of the most vivid features attributed to the university teachers representing Lithuanian academic community, whereas university teachers' relations with students were characterised as "warm", "nice", "kind" and "sincere": *"in general, people in university were very nice"; "university teachers are very friendly"; "relationships are very warm", "teachers are trying to help students". "It is something unimaginable in France" – a French student (Music Education) added. The majority of students related the abovementioned features of university teachers with their exceptional attention to international students: "it looks like we are guests in Lithuania, and all teachers and students want to make everything as good as possible. Thanks for it!".*

Discussing communication and collaboration with students from other countries, Chinese students expressed a wish for *"a closer cooperation with Lithuanians and international students from other countries".* A German student supported such an idea stating that *"it is very hard to meet Lithuanian students".* A student from Turkey wanted more communication in English: *"in our dorm and in the university, there are many Turkish students. Therefore, I have to speak Turkish most of the time".* Some students were surprised that *"a lot of Lithuanian students do not speak English" and "students are sometimes impolite to university teachers".*

The responses of the participants of the research highlighted the fact that academic environment in Lithuania is directed towards the learning paradigm and enables a student to achieve intercultural competences. Didactic conditions as well as application of strategies and methods of education and assessment received favourable evaluation as well.

### **Socio-cultural factors**

International programs offer an opportunity for students to spend an integrated period of studies in another country, to acquire academic, linguistic and cultural knowledge. At the beginning of each semester a new student orientation week is organised to get to know each other better and, most importantly, to introduce the incoming students to the university and lecturers. Trips around Vilnius and nearby towns are also organized by the network (Lietuvos edukologijos universitetas, 2017). So, studies abroad not only provide students with experience in formal learning but also enable them to meet other people, to access different environment as well as to appreciate self-awareness and learning of own culture.

Students from China acknowledged that *"we were able to travel a lot in Lithuania and Europe. Now we know the country we are studying in much better".* Considerable attention and admiration were given by students to landscape, people, cultural objects, nature of Lithuania and Vilnius: *"Vilnius is a very fascinating city. It is alive, colourful and cheerful"; "I saw how many churches are there only in Vilnius"; "the city is quite calm"; "in Lithuania there is greenery everywhere and in Vilnius as well".*

Having arrived for studies in another country, the environment of the new cultural context is naturally compared to the native one identifying similarities and differences (cleanliness in towns, traditions and values nurtured by people): *"First of all, it was cleanliness in the country. In Lithuania it's not possible to see any trash on the ground. For me it was a real surprise because in the Czech Republic it is different".* And one more comparison can be provided: *"We were surprised that Independence Day and other celebrations in Lithuania are about family and friends not about food, drink and spending money".* However, the reflections generalised the main values of Lithuanian people: *"family, sentiment, morality, romanticism, music, love of nature, patriotism and hospitality. These values fit Lithuanian people very well".*

The study revealed the problem situations (academic, cultural, daily life) experienced by international students, which became evident in natural environments of intercultural interaction. Students indicated the major challenges encountered during their studies in Lithuania: university library and the canteen, dormitory rules and their observation, shopping centres and supermarkets, service in restaurants, eating habits. The research data revealed that numerous challenges encountered by international students were caused by different social skills and personal needs.

All the international students went through the period of adaptation to the new environment or culture shock. Such experiences were caused by insufficient familiarisation with physical conditions and social environment: *“Of course at the beginning I was shocked. Everything was strange to me. The city, people and the language. And on the roads cars were waiting for me to cross the street. Totally different”* [a student from Turkey]. A Czech student expressed negative attitudes and surprise about public transport schedules in Lithuania, *“which is totally chaotic and incomprehensible”*. According to him, *“people in the public transport are very ruthless and disagreeable”*. A student from South Korea mentioned that *“the biggest culture shock after coming to Lithuania is that nobody is really in a hurry”*. She did not hide her disappointment over Lithuanian climate and cold winters: *“it was so cold and dark. Even during the daytime, there was no sun”*.

Foreign students expressed their opinion about dormitory culture as one of the elements of adaptation and learning rules of daily life. Contrastive variants of attitudes towards living conditions in the student dormitory are presented further: *“In South Korea, dormitory is thoroughly managed and has many rules to follow. Also, there are lots of manners to keep between roommates. Dormitory is very conservative. The dormitory life in Lithuania was so open”* [a student from South Korea]; *“after arrival in Lithuania, we were surprised that female and male students live in the same dormitory”* [a student from China]. It can be noticed that students from Germany, Italy, France and the U.S. provided an absolutely different evaluation of her life in dormitory because she was happy that students from all countries participated in it: *“living in the dormitory means you are never alone!”*

### Internal factors

Studies abroad are related not only to acquisition of intercultural competences but also to internal changes and personality improvement. Personal qualities reflect students' attitude towards studies, openness to cultural needs, sensitivity to cultural differences, respect for cultural values, tolerance for traditions and customs of another culture, empathy and self-confidence communicating with representatives of other cultures and a sense of responsibility for own culture (Chodzkiene, Barkauskaite, 2015).

It is obvious that the use of foreign language became a real challenge to some students: *“I did not have confident talking to a foreigner in English before”*; *“my English wasn't very good... I really felt desperate”*. On the other hand, students felt very self-confident after studies abroad and explained the reasons: *“I did not say a word in class before in South Korea or beginning time in Lithuania but now I can express my opinion freely”*.

Chinese students acknowledged that *“the most difficult things were to get adapted to new environment, to learn about daily things, customs and etiquette. We needed a lot of time to adapt”*. They also acknowledged that *“we still lack confidence in ourselves, openness to innovations. The biggest problem is inborn modesty and reticence”*. The period of studies in another cultural context stimulated internal changes in personality: *“I feel as if I am improving myself in everything. I am earning my courage here”*; *“it was significant that I had time to think about what I want to do and explore my future”* [a student from Turkey].

The opportunity to meet new people, gain new experience occupied a significant place in the students' reflections: *“The best experience in Lithuania and also the best thing during Erasmus are the people. You will meet many new people from different countries. For some time, these peoples become your family and some of these peoples will be your family after the end of Erasmus”* [a student from Italy]. A comment of a Czech student about a possibility of learning other countries, their culture, getting acquainted with wonderful people and discovering various aspects of other cultures, i.e. comprehensively developing their intercultural competence, through international programs should be noted: *“you have to go to Lithuania. You will know about culture around the world. You will see beautiful nature and architecture”*.

The delighted insights of many international students into the impact of (mobility) studies abroad on intercultural competence are worth noticing: “*The decision to go on Erasmus is one of the best decisions in my life. Erasmus is an indescribable experience*”; “*you will discover a lot of things about themselves, increase self-confidence and you'll find that you can take care of yourself*”; “*Lithuania is a very interesting country with beautiful landscape and rich culture*”.

On the basis of foreign students' reflections, it can be stated that educational and socio-cultural context of environment in Lithuania revealed itself as a rich cultural medium for development of students' intercultural competence. The role of a higher education institution in development of intercultural competence is particularly significant. Therefore, the content of the implemented programs has to dedicate considerable attention to the development of this competence development and foreign students participating in international programs have to be provided with conditions to integrate into the culture of a hosting country and to learn it. Research on intercultural competence development shows, however, that it is not as simple as that (Dehmel, Li, Sloane, 2011). One of the reasons for this is the lack of adequate systematic and holistic pedagogical designs at university education level.

### Conclusions

- Studies abroad are regarded as a priority factor of intercultural competence, which encourage learning of foreign cultures, confirm the significance of foreign language skills and open the way to personal and professional development. The experience acquired by students in the process of intercultural education (through different international study programs) is an essential source of learning.
- The results of the study revealed that within development of intercultural competence student motivation (opportunity to study abroad, to learn or improve a foreign language, to form new relationships and to develop personal skills) as well as conditions of educational environment, relationships between the university teachers and students and obtained intercultural experience become very important.
- The analysis of intercultural experiences of international students revealed that conditions of educational environment in Lithuanian University of Educational Sciences are sufficiently focused on the contemporary learning paradigm and enable students from abroad to develop their intercultural competence. Multiple conditions established in the academic and socio-cultural context of hosting country enabled international students to integrate into Lithuanian culture and to more comprehensively develop their intercultural competence.
- The hypothesis that the subsamples of students from different international study programs would display distinct profiles of experiences was not confirmed. The study revealed problem situations (academic, cultural, daily life) encountered by international students during their degree studies in real environments of intercultural interaction. Generally, international students (more or less) enjoyed their studies in Lithuania regardless of whether they faced any challenges or not.

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## Creative Imagination and its Development in Ontogenesis

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**Abstract:** Education for sustainability comprises knowledge about the ontogenetic tendencies of development of creative imagination, because creative imagination is necessary for implementing programs of sustainable education. On the turn of the 20<sup>th</sup> century T. Ribot has carried out the research on age peculiarities of creative imagination. It was stated in the research that creative imagination is developed most intensively in the preschool and at the early school age. Further on, the development of creative imagination slows down and declines at the age of adolescence. The aim of this investigation is a comparison of ontogenetic tendencies of a development of creative imagination during times of T. Ribot and our peers. The experiment of the research of ontogenetic peculiarities of creative imagination included in itself two parts. During the first part in 1995-2000 two hundred participants took part in this experiment. During the second part in year 2016 one hundred participants took part. The modification of the test of E.P. Torrance took place and the results gained in this test were similar to the results gained in the test by T. Ribot. It was discovered that during the development of creative imagination there are two crises: during the age of 7-8 and during the age of 15-16. Results gained during this research leads to conclude there are two peaks in the development of an individual (at the age group of 11-12 and at the age of 30-40). The results are statistically significant.

**Keywords:** sustainable education, Ribot, creative imagination, development of creativity.

### Introduction

Creativity has been absent from the sustainable development agenda despite its importance in developing the freedom of expression and dialogue. Creativity is an open-ended concept. Today creativity has become a source of entrepreneurial inspiration and a drive to innovation. The task of today is to root it in sustainable social-economic and environmental practices. Creativity contributed to attaining the ideals of sustainable society by encouraging an autonomous thinking, by seeking inventive and innovative aspects as a part of any development strategy oriented towards fostering sustainable development (Shlahova, Volonte, Cacka, 2017; Ilisko, 2007; Salite, 2015). Creativity is a dynamic and evolutionary concept since new problems arise. It also has a practical side since it makes one to move from thought to action or from a dream to decision. Creation implies creating new ways to look at the issue or a task, and sometimes in unexpected ways.

One of the first researchers who studied the issue of a creative imagination, is the creator and the director of the first French laboratory of an experimental psychology, Theodul Ribot (1839-1916) in his works wrote about the importance of creative imagination in the development of both an individual and all the humankind. In his work "*Creative Imagination*," by referring to Vico's research, he wrote that the history of a humankind can be divided into three stages. The first stage can be called divine, or theocratic. The second - heroic, or fabulous. The third is historical, or human. In the first two stages, as T. Ribot wrote, that the imagination dominates (in the third it is gradually replaced by the logical thinking). It was the imagination of people who created myths, religions, legends, sagas and epics. Moreover, the author further points out, that a holistic development of peoples and cultures implies a compulsory passage through these two first stages (Ribot, 1906). Having determined the historical significance of the creative imagination, Theodor Ribot organizes an experimental study about the age-specific features of the development of person's mental process. As a result of the research, it was concluded that a creative imagination is intensively developing at the junior school age. The critical point of development of the phenomenon is when the progressive trends are replaced by the regressive ones and coincides with the onset of adolescence. The results of the T. Ribot's study are schematically seen in Figure 1.

In line with the results gained during the experiment of T. Ribot, the development of creative imagination is more intense during the age group of 5-15, followed by a regression. Since T. Ribot has carried out his experiments, one hundred years passed since then. Since then a number of innovation have been introduced such as radio, television, internet and mobile connections. In this context the

question should be set how all those innovations have influenced a creative imagination of a person or how the experiment set by the T. Ribot relates to a contemporary situation.

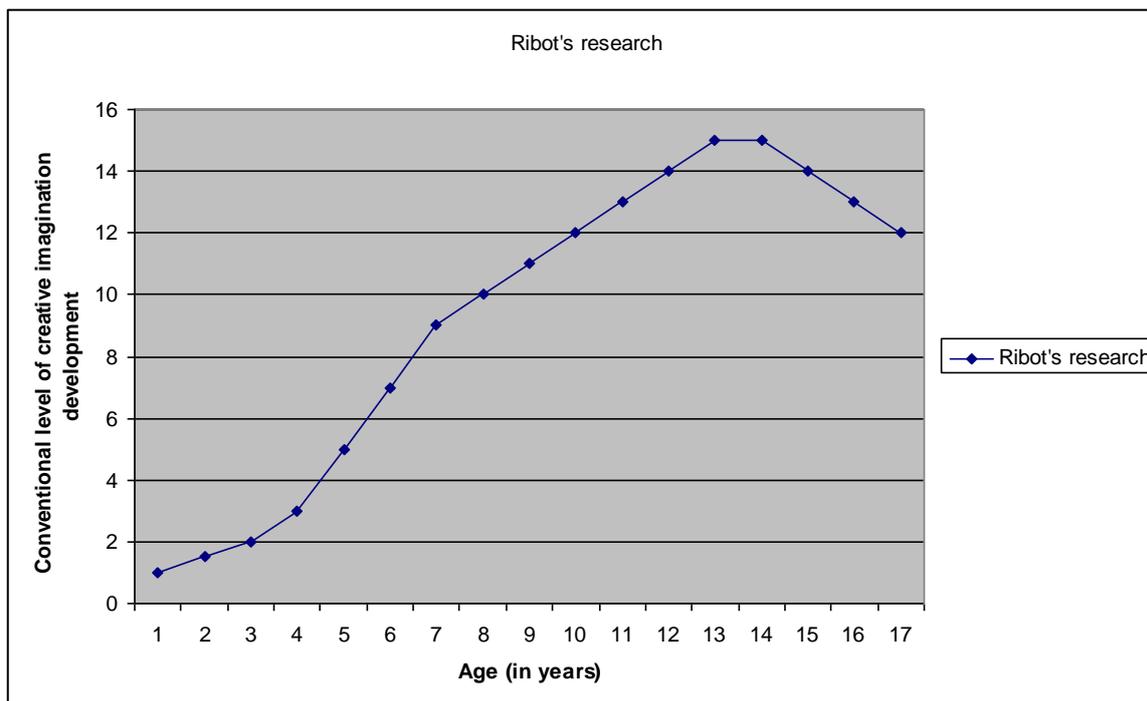


Figure 1. T. Ribot's curve showing the dynamics of the development of creative imagination.

The research of creative imagination includes in itself three parts: Philosophically psychological that focuses on the understanding of the main notions; the understanding of a notion of creativity, learning the place of creativity in the structure of psychological processes of a personality. There were two strong conceptions among all the philosophical and psychological concepts. One was related to the philosophy of positivism. The second is psychoanalytical.

The author of the first concept D. Dewey defines creative imagination as an act of thinking. This is necessary in the case when finding a solution from the situation, one learns about the result first before the solution is derived by the operations of logical thinking (Dewey, 1910). Here creative imagination is a process that supports logical thinking. The conception of D. Dewey explains one of the creative parts of an individual, namely, technical creativity.

The representatives of psychoanalysis do not come to an agreement about the definition of creative imagination. For example, Z. Freud considers creative imagination as the bases of creativity that arises as a result of sublimation, by transforming sexual energy for the socially significant aims (Freud, 1990, 2011). For the C.G. Jung and his followers, creative imagination and creativity is related to the actualization of deep psychic notions - archetypes (Jung, 1988). Those notions are related to the use of creative imagination to the development of a person. Here it should be noted that the subject of psychoanalytic concepts is artistic creativity.

This is necessary to emphasize that the main notion of the psychoanalytical conceptions are notions. Now we will explore the issue of a notion. V.P. Gloveanu in his research: „*Creativity in context: the ecology of creativity evaluations and practices in an artistic craft*” has formulated two questions the answers to which allows to understand the meaning of creativity.

The first question is: “How can creativity be defined?” The second question is: “Where is creativity located?” While answering the first question, the author distinguishes two-time frames that differ with the focus of attention on a creative person. The first period can be described by its focus on a creative activity of great personalities. The second period has started in the middle of the last century and lasted until the 20th century with its focus on creativity of ordinary people (Gloveanu, 2010). V.P. Gloveanu describes creativity as a tirade “creator-society-new creation.” Creativity comprises individual peculiarities of a creator and social requirements set for the creative product. Creative imagination in this structure reflects individual peculiarities of a person (Gloveanu, 2010).

Researchers have come across the same understanding that a creation of something new depends on one's motivation and creativity (Amabile, 1996). Creativity is reflected in ingenuity, inspiration, serendipity and talent (Plucker, Makel, 2010).

The theories of creativity use the criteria that were set for describing the act of creativity. Before we reflect on theories of creativity we need to point out that in the Eastern European languages. One can find two understandings of creativity reflecting both, the process and the outcome of a creative process. In the Latvian language it is translated as "radosums" – "jaunrade." In the Polish language:

"kreatywnosci – kreatywnosc", the Estonian language: "loovust – loovus."

Since there is no such division of this term in English, therefore many processes cannot be explained in a very detailed way. For example, the text in Russian, which is given below and in which the author compares the concepts of creativity (tvorchestvo-process) and creativity (kreativnost, result): *Creativity (tvorchestvo) is primary and fundamental. Creativity (kreativnost) is secondary. Creativity (kreativnost) is based on creativity (tvorchestvo) and cannot exist without it cannot be translated into English.*

This makes the process of creative activity more difficult for the translation and interpreting as it is explained in the Eastern European literature sources. All the theories of creativity can be divided in two groups. The theories of the first groups can be defined as typological. The theories comprising the second group can be named as structural.

Typological theories describe different aspects and spheres of creativity. The theory of 4P, distinguishes the following spheres: a process, a product, personality and a place (Kozbelt, Beghetto, Runco, 2010; Rhodes, 1961). This process involves skills that are needed for completing the task. The product can be evaluated according to the following criteria that are used for the evaluation of a creative work. Creative personality can be defined by peculiarities of thinking, imagination and motivation that allow to design a creative outcome. Finally, special social conditions are needed that lead to a creative outcome (product).

Psychological literature offers typological theories of creativity. The authors of a collection of articles "The Nature of Creativity Contemporary Psychological Perspectives" (Sternberg, 1988) describe not only spheres of creativity but the interrelatedness of environment and a personality. Theories that are focusing on the process of creativity in a single sphere can be named as structural. Research of a process of creativity as a rule is related to one of the spheres of intellect.

The other sphere of creativity is related to the product of a creative activity. The Latvian researcher D. Kaleja–Gasparovica has come to a conclusion that creativity of the product of a creative activity can be described according to the following criteria:

- originality, innovation that can be observed in a certain context: individual social and universal;
- value (efficiency, acceptance);
- elegance (aesthetical quality);
- transferability (idea can be used in other situations and contexts);
- intentionality (Kaleja-Gasparovica, 2012).

The third sphere is related to a personality. Creativity is reflected as originality in thinking (Alexander, Shoshani, 2015). Creativity begins with an idea. M.A Boden (2004) maintains that creativity is something of a mystery, not to say a paradox. By this the author emphasizes that creativity is related to an intuition and logical thinking (Boden, 2004).

Creativity is frequently being related with originality. S. Acar, C. Burnett, J.F. Cabra relate creativity to a dimension of a value, surprise and aesthetics (Acar, Burnett, Cabra, 2017). The fourth sphere related to creativity, is an environment. Social sphere initiates creation of new ideas in different spheres of human life. Another line of research related the issue of creativity is the role and the place of creative imagination in the structure of psychical processes of the personality. Plesk distinguishes the following components of a creative personality:

- purposeful analyses;
- generation of ideas and critical evaluation of ideas.

According to P.E. Plesk, creative process from its very beginning (creation of an idea) is related to thinking and imagination. Still, the central process is a creative imagination (Plesk, 1997).

Several other researchers point to the main role of creative imagination in the process of creativity. The researcher A.J. Starko offers the following structure of creativity:

- thinking in metaphorical terms;
- flexibility and ability to make decisions;
- resistance to a pressure;
- interest in the innovations;
- ability to think logically;
- ability to visualize;
- ability to think outside the box (Starko, 1995).

Creativity is related to thinking. In the first case – metaphorical, in the second - logical. In this context, metaphorical thinking is synonymous of a creative imagination.

Research published in English reflects the following terminology. The term ‘*creative imagination*’ is being replaced by the term ‘*creative thinking*.’ There are certain contradictions.

L.I. Shragina explains that creative imagination and creative thinking has a common ground and similar mechanism of activity, but both have different aims: thinking is oriented towards the analyses of the surrounding reality, but imagination is related to a creation of new images (Shragina, 2013).

In the light of the results of the development of a creative imagination reflected above and by taking into account the peculiarities of a development of psychic processes of a contemporary person, the authors formulated the hypotheses of the research in the following way: **creative imagination development in its ontogenesis has a non-linear character while both progressive and regressive tendencies are observed in the process of a development.**

To test the hypotheses, the authors set the following tasks:

- to explore diverse theories of a creative development and a creative imagination (this was disclosed in the introduction);
- to select the methodic for testing creative imagination (this issue was disclosed in the part of methodology);
- to explore the tendencies of development of a creative imagination in ontogenesis;
- to carry out research by testing results gained during the study and to compare them with the results gained by T. Ribot (these tasks will be solved in the section Results and Discussion).

The aim of the study: To explore ontogenetically peculiarities of the development of a creative imagination among our peers and to compare results with the conclusions of T. Ribot.

## Methodology

The choice of a methodology is related to two significant aspects. First of all, the participants of this research were the respondents comprising diverse age groups. Secondly, the result of research was measured in a quantitative term in order to be compared.

These were the criteria set by E.P. Torrance in order to measure the level of creativity of a person: TTCT (*Torrance Tests of Creative Thinking*) (Torrance, 1966). For the purpose of this research the authors have used two modified subtests. With the help of first sub-test the authors have studied nonverbal aspects of a creative imagination. This subtest was comprised of 16 unfinished drawings which a respondent was asked to complete (Figure 2).

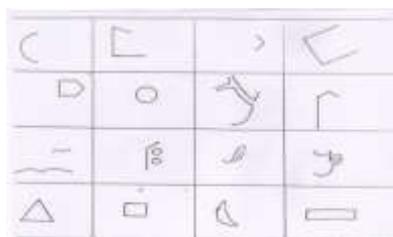


Figure 2. Subtest which allows studying the nonverbal constituent of creative imagination.

Each drawing is evaluated in one-point score. The authors set the criteria used for the evaluation of drawings. The drawing is not completed. The author uses the idea suggested in the drawing. The respondents use only one element for completing the drawing: 0 points. The author uses his/her own idea while completing a drawing. The respondent uses several elements while completing a drawing: 1 point. One can notice a development of a plot. The lines in a drawing became a part of a plot. The lines offered in the drawing can be seen in a drawing: 2 points. The lines offered at the beginning of activity cannot be seen. The lines are integrated in the drawing and are connected with other details: 3 points.

In Figure 3 one can see the example of drawings placed in the upper line of the stimulus material.

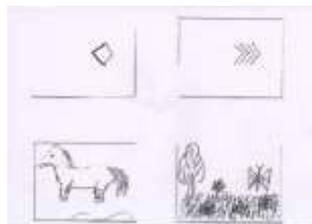


Figure 3. Additions to the drawings evaluated in 0, 1, 2, 3-point scale.

The second subtest allowed to learn about a verbal aspect of a creative imagination. The representatives of all age groups were offered the following task to complete: they were asked to think about as many words as possible for a description of objects with the following characteristics: white, small, round, edible. If word is being repeated by three and more respondents from the same age group, the respondent gets 0 points. If a word is not repeated three times by the other research participants, one gets 2 points. The results on a nonverbal and verbal aspects of the test were summarized afterwards after a completion of the test.

The number of respondents who took part in this research were 300 respondents comprising the age group from 5-40. All the respondents were divided in 13 age groups: 5, 6, 7, 8, 9-10, 11-12, 13-14, 15-16, 17-18, 19-20, 21-24, 25-28, 29 and up years old. The experiment on ontogenetic peculiarities of creative imagination consisted of two parts. The first part took place in 1995-2000 and 200 people took part in this experiment. During the first part of the experiment there were 15 participants, including 6-7 years old (20) and 5 years old (10) participants. During the second part of the experiment that took place in groups of 6, 7 and 8 years old children (20 participants in each group), as well as 15-16 and 17-18 years old pupils in every group. The aim of the 2nd part of the experiment was: checking up results gained during the first part of the experiment. The sample was composed on the bases of the following participants: pupils of the comprehensive school, adults with the educational level lower than average. The sample was made according the principle of occasional choice of the sample. The participants were inhabitants from Daugavpils and Ilukste (South-East Latvia).

## Results and Discussion

Figure 4 depicts the average a level of development of verbal and nonverbal development of creative imagination depending on the age group. Figure 4 reflects that for children of age 8 there is an evolution of creative imagination. At the age of 14, the process of development on creative imagination is more intense until recession begins.

At the age of 20, one can notice the raise of creative imagination. The dynamic of a creative imagination that is reflected in the figure 4, repeat the tendencies that were discovered by T. Ribot. The plot appeared in drawings of children aged 8. The drawings were the respondents could gain the highest score are similar to the drawings done by the children at the age of 11.

By the use of the Student's T-criteria, the author has calculated a statistical significance of level of development of creative imagination. The age of different age groups indicates that the most significant changes in measurements (the level of significance -0.01) takes place at the age of 8 (3,422), and 14 (7,092), as well as at the age of 20 (3,523). There are three critical points in the process of ontogenetic development of a creative imagination. Two of them are related to a transition to the stage of progressive changes – one is related to a transition to significant negative tendencies in the development of creative imagination. At the age of 7-8, one can notice a delay in a dynamic of a development of a level of creative imagination. This can be explained by the changes in the dominant behavior. Children begin

attending the school at the age of seven. The child needs to adapt to a new environment, particularly a narrative position of a school pupil. The child needs to respond as this as required at school.

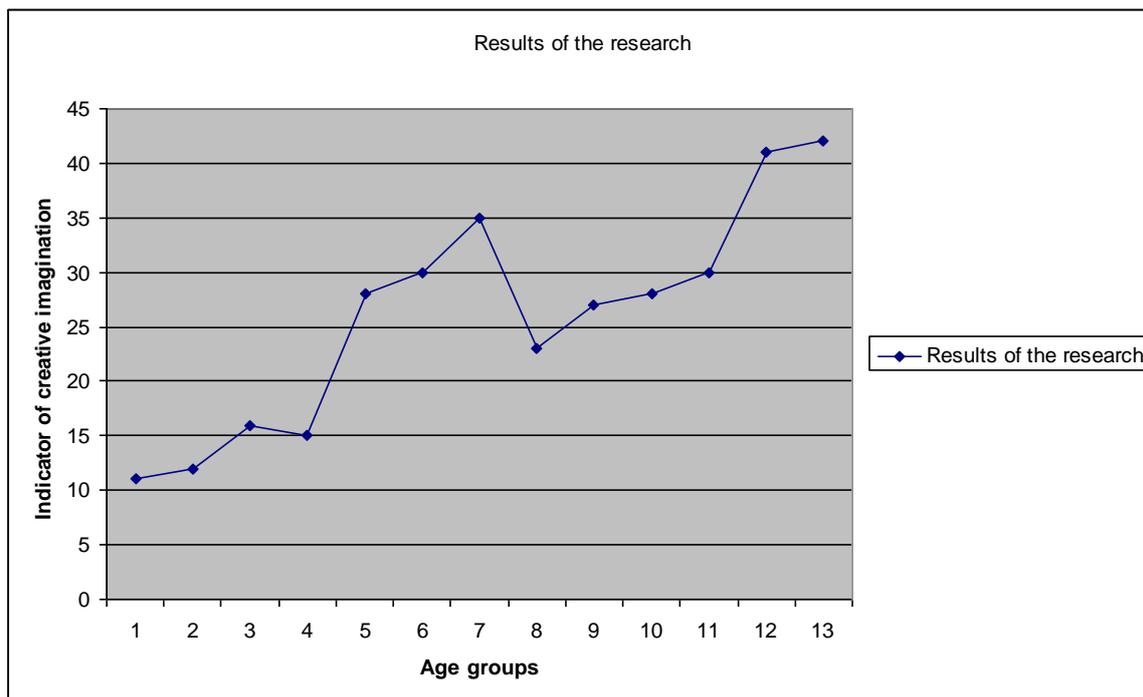


Figure 4. Results of the study about the dynamics of creative imagination.

The second delay lasts from 13-14 until 29 that marks the stage of a development of teenagers and youth. This is a time of significant changes in one's life. During this time, one develops one's professional identity (Erikson, 1995), that is needed for a solution of essential life problems: with whom to develop friendships, how to gain an authority in a referent group, where to go to study, how to choose a partner. Besides, in the age group of youth, the use of slang - a more primitive language is typical. The critical points in the development of a creative imagination relates to critical points in persons' development, related to changes in the social status and new roles of an individual.

The participants were from one region. Therefore, the conclusions made according to the research findings are only tentative. Despite of the similarities of this experiment with the experiment of T. Ribot, there is a need for further investigation that requires bigger number of respondents and regions to be included. That other aspects that need to be considered are: the status of the respondents: education, social status and the regional peculiarities.

## Conclusions

- Creativity plays a significant role in a sustainable development of 0-humankind. Schools need to play an essential role in developing creativity among children since children are 'natural dreamers' and they use their imagination to explore new possibilities. Conventional education prioritizes thinking as a disconnected from imagining, rational concepts become disconnected from creative thinking. Children do not use their creative abilities for thought-based exercises.
- The authors encourage schools to pay more attention to the development of creativity and we believe this is an essential ability in co-creation of sustainable solutions. Sustainability depends on one's ability to be creative and innovative. This can bring along new solutions and can help to adapt to challenging situations by developing a positive future-oriented attitude.
- As this was stated by T. Ribot, there are two crises in the development of creative imagination of an individual - at the age of 7-8 and at the age of 15-16. The results gained in this study also testify the fact that there are two peaks in the development of this phenomenon (achieving the highest values) - at the age of 11-12 and at the age of 30-40. The educator needs to pay close attention to critical points one's development in order to capture the most sensitive time for a development of an individual's creative potential.

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## Undergraduate Students' Perseverance in the Context of Foreign Language Studies: a Case of Latvia University of Life Sciences and Technologies

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**Abstract:** This study is an attempt to examine the factors influencing undergraduate students' perseverance during the ESP study course at the Latvia University of Life Sciences and Technologies. The curriculum of the Latvia University of Life Sciences and Technologies includes content-based ESP courses in the first and second years of undergraduate studies which are integrated in the whole study process. Foreign language skills are of special importance for obtaining versatile professional and scientific information. Academic staff of the university has recently observed that many students are not ready to accomplish complicated tasks but rather choose to be content with a lower grade without trying to put an effort to achieve the goal. Therefore, the aim of the study is to identify factors influencing students' perseverance in the context of foreign language studies. The study is based on the focus group discussions. The mini focus groups discussions were conducted with the 1<sup>st</sup> year undergraduate students from different faculties of LLU. During the discussions factors influencing students' perseverance were identified and ranked according to their importance. The analysis of the research results shows that students choose passive rather than active role in language studies in university. They lack the necessary perseverance in order to achieve better results in studies. The 1<sup>st</sup> year students sometimes do not have motivation to study professional terminology as they do not see the link between the language and its practical application. Another issue is that students often lack learning skills and motivation to make an effort.

**Keywords:** perseverance, ESP, academic performance, focus group discussions, higher education.

### Introduction

The curriculum of the Latvia University of Life Sciences and Technologies (LLU) includes content-based study courses of Professional Foreign Language studies in the first and second years of undergraduate studies, which are mostly implemented in English (English for Specific Purposes, ESP) due to the fact that most students have chosen English as their foreign language. ESP courses are an integral part of the whole study process where students of agriculture, forestry, IT, engineering, social sciences and other fields gain new skills and knowledge necessary not only for the academic environment, but also for their future careers. English for specific purposes (ESP) researchers (Dudley-Evans, St. John, 1998; Hutchinson, Waters, 1987) define ESP teaching/learning as a study course that is designed to meet specific needs of adult learners and is related in content, methodology and activities to a specific subject field or occupation improving students' knowledge of syntax, vocabulary, text structure, semantics, and so on, that are appropriate to such content. The Latvian researcher I. Luka (2010) argues that the competence of a foreign language for special purposes consists of communicative, intercultural and professional activity competencies, and these components interact in a definite socio-cultural context. The focus during the study process at LLU is on learning terminology in the subject field and the development of knowledge and skills necessary for reception of professional and research literature. In addition, the students' productive skills, speaking and writing, are developed mainly through professionally oriented tailor-made tasks and activities (Ozola, Grasmane, 2012).

As regards the organization of the ESP study process at LLU, several problems have been identified which are necessary to describe in more detail. The English Language Centralized Examination results of the secondary school students in Latvia show that in 2017 the proportion of the English language proficiency levels A2 and B1 dominated over the English language proficiency levels B2 and C1 (the ratio is 61.84 % for A2 / B1 compared to 38.15 % for B2 / C1) (Eiropas valodu prasmes..., 2017). Since the score of this examination is not included in the university admission requirements, students enrol with different English language entry proficiency level. The concern about the results of centralized secondary school results has been expressed in mass media as well as in various research publications. For example, O. Krasnopjorovs

(2017) in his study proved that the positive results at the school-leaving examinations correlate with the number of the students in schools suggesting that there is a gap in results between large urban schools and small rural schools where students show worse results at the examinations (Krasnopjorovs, 2017). It should be noted that LLU provides studies for many young people from rural areas of Latvia. Due to the fact that there is a great variety in the students' proficiency level, one academic group at LLU contains the students with very varied English language knowledge.

Language teachers at university have observed that recently many students lack sufficient speaking and presentation skills, some students are too shy to present in front of the audience. The students' autonomous learning skills could be more developed: they are not willing to work with the texts and study the terminology in the subject field individually by themselves. In addition, some students complete tasks in a superfluous manner unwilling to elaborate on the quality of the outcome either oral or written. They lack perseverance to deal with challenging for them tasks. They are not ready to accomplish complicated tasks but rather choose to be content with a lower grade without trying to put an effort to achieve better results.

The experience and observations of academic staff of LLU have led to a conclusion that not only cognitive skills determine the success of the students. There are other factors as well. M.L. Gutman and I. Schoon (2013) in their research suggest that perseverance along with motivation and self-control belong to "non-cognitive skills" that refer to attitudes, behaviours and strategies underpinning success in school and at work. Non-cognitive skills can include a very broad range of characteristics (motivation, confidence, tenacity, trustworthiness, perseverance, social and communication skills) which have become more important recently in determining academic and employment outcomes. Perseverance, according to M.L. Gutman and I. Schoon (2013), "involves steadfastness on mastering a skill or completing a task". The authors focus on two manifestations of perseverance: engagement and grit. "Engagement" entitles involvement in academic, social or extracurricular activities which require effort, persistence, concentration, attention, asking questions and contributing to class discussions, willingness to put an effort. "Grit" in its turn is based on a person's desire and perseverance for a long-term goal. "Grit" entitles working towards the goal despite failures or adversity (Gutman, Schoon, 2013). The authors of the present research consider that these non-cognitive skills are important for students in academic environment; learning difficulties the students experienced in the past in their secondary schools might influence their perseverance at the university. Therefore, the authors considered it necessary to study the above-mentioned problem in order to find factors influencing students' perseverance in order to improve the study process and to make it more effective.

**The aim** of the study is to identify factors influencing students' perseverance in the context of foreign language studies at the Latvia University of Life Sciences and Technologies to help students develop professional language and academic skills.

## **Methodology**

In order to investigate what affects perseverance of undergraduate students in English studies, a qualitative study design was developed. It was assumed that the lack of perseverance in foreign language studies at university is consequences of previous individual experience of English studies at school. Empirical data were obtained during three mini focus group discussions in June 2017 at LLU. Mini focus groups normally involve three to six people (Litosseliti, 2007, 6; Oates, Alevizou, 2018, 10). Group interviews and focus group discussions as a method have gained popularity in social sciences for a number of advantages. For people who do not feel comfortable in face-to-face interactions, focus groups offer more 'safe' and an informal environment where participants can share views, experience, beliefs, and attitudes in a free and opened discussion about a particular topic (Krueger, Casey, 2015). Participants can react to opinions of other respondents and build their arguments upon the responses of others (Wilkinson, 2004, 180). Thus, the focus group method allows group dynamics often raising issues which otherwise would not emerge from an interaction between the single respondent and the researcher. This particularly is important in discussions with students in order to investigate students' opinion about factors affecting their perseverance in language studies. The aim of focus groups is to understand meanings and interpretations of the participants, therefore less structured approach to a group interview encourages people to talk to each other instead of answering a number of questions asked directly by an interviewer. These were the main reasons why the focus group method was chosen for the particular study. The research methods were

focus group discussion and monographic analysis. The research question is the following: what influences undergraduate students' perseverance to achieve better academic results?

The mini focus groups discussions (three and four participants) were conducted with the undergraduate students from different faculties of LLU: the 1<sup>st</sup> year students from the Faculty of Economics and Social Development, the 1<sup>st</sup> year students from the Engineering Faculty, and the 1<sup>st</sup> year students from the Faculty of Environment and Civil Engineering in the time period from June 6 to June 21, 2017. Participation in the discussions was offered to students who submitted home tasks after the first deadline. Those random students who agreed to participate were invited to focus groups discussions. In total, eleven students were involved in three discussions. According to the commonly accepted research practice, the focus group discussions were 'audio taped with the use of accompanying field notes' (Wilkinson, 2004, 179). The participants were asked for a permission to record the conversations and that was received. The average length of the discussions was approximately one hour. The participants of the focus groups were asked about the following issues:

- 1) how much and what type of English lessons they had in the primary and secondary school;
- 2) how English lessons were organized at school (e.g. how much time was spent for reading, listening, speaking, and writing; did students practice speaking in dialogues; did they prepare presentations and practice speaking in front of the group; how was the feedback from the teacher received);
- 3) what learning, and teaching methods would encourage to study professional English at university simultaneously improving perseverance of undergraduate students.

Results of the discussions were analysed according to the methodological requirements (Wilkinson, 2004).

## Results and Discussion

The researchers of different countries have investigated the academic performance of students and emerging trends in students' behavior. Thus, a group of professors from the United States (Cherif et al., 2014) did the research about the reasons of students' bad performance at university analyzing the problem and suggesting solutions to help academic staff teach and students learn and succeed. The research identified three main root-cause **factors** for students' failing: 1) student-related factors; 2) life and socioeconomic issues, 3) failures of the educational system. The findings highlight similar problems since student-related factors include not being ready for college, lack of effort among students, lack of motivation or interest. As regards life and socio-economic issues, they include life, work and career problems, as well as an economic situation. The third group of factors mentioned by the group of professors refers to institutional instruction and behavior and institutional facilities, materials and delivery systems. Another research refers to teacher-related factors; the results of the research carried out by S.B. Alos, L.C. Caranto, J.J.T. David (2015) show that teacher-related factors have a high impact on academic performance. They concluded that teachers should use varied strategies to improve students' performance, and also teachers should master their teaching methods in training seminars. In this article the authors focus on student-related factors.

Another trend which has emerged in the last decade is dividing generations into groups. Present day students are called the millennials or representatives of Generation Y. The metaphor "digital residents" is used to describe young people who have technologies at their fingertips. It is considered that millennials prefer to work with superiors who are approachable, supportive, good communicators, and good motivators (Epstein, Howe, 2006). They enjoy trial and error and do not highly value reading and listening to lectures (Mangold, 2007).

Having summarized the above described recent trends, the authors carried out the study by conducting mini focus groups discussions. The obtained recordings of the students' spoken texts from the discussions were transcribed and analysed to identify factors influencing the students' perseverance during the studies at the university. The analysis of interviews showed that the students referred to different experience of language learning and teaching in primary and secondary schools. Thus, some of the respondents have had English once a week while other had even 10 lessons per week (two hours a day). One of the students remembered that lessons were missing for a long time as a teacher was not available. In most cases student groups in school were between 10 and 15 children; however, in one case bigger group was mentioned (more than 20 people in a classroom). Regarding language learning process in school, respondents named different methods and tasks. Most commonly used practice was reading

small texts followed by a task, writing new words, speaking short dialogues in pairs (five to ten minutes), word tests, monologues or dialogues about the particular topic, listening to CD, using workbooks. Lesson plans often followed a particular routine (speaking, writing words). The students have got used to work with 'interesting materials' comprising pictures, small texts and excerpts, what in turn they lack in university. During the focus groups this was mentioned as a reason negatively affecting students' perseverance. This actually is dilemma and a challenge: the students at the university need to study professional language and terminology (legislation, technical concepts) which is more 'boring' than 'interesting'. However, pedagogical skills should solve this dilemma.

Asked about effectiveness of the learning process at school, the respondents expressed varied opinions. Some admitted that the process was well organized; however, their own attitude and efforts were insufficient to gain adequate language skills and knowledge. Now this has an adverse impact on language learning at the university. Others named interesting approaches that teachers used to motivate students, for example, every student had to read one book throughout the school year and had to pass specific test based on the topic and words of the book. Some students agreed that they lacked English environment in terms of opportunities to speak and use language practically while others mentioned opportunities to practice language in summer camps or international visits abroad.

In the study the authors assumed that previous individual experience of English studies at school influenced the undergraduate students' perseverance. The former experience and learning skills are influenced greatly by the professionalism as well as personality of language teachers at schools. Involvement of the students in the learning process during lessons in classrooms at school was varied: those who were self-confident and performed better, behaved more actively and in an interactive manner whereas those who lacked encouragement and had learning difficulties were shyer and therefore passive. This behaviour has been transferred also to the university.

As it was noted above, language teachers at university have observed that many students lack speaking, and presentation skills therefore focus group participants were asked about their experience to speak English in lessons at school. According to responses of focus group members, number and length of speaking tasks differed from school to school. Some respondents referred to cases when speaking in English classes happened rarely and few classmates almost did not speak at all. Some teachers corrected mistakes carefully whereas others did not pay a sufficient attention to imperfections in the students' speech. This attitude did not motivate the students to improve (they did not know what to improve), speaking became rather formal. In general, the respondents assessed that speaking was practiced around 20 % or less of the total time in English classes. Some students remembered that a teacher required oral presentations on particular topics in front of the class while other students never presented in English classes. Sometimes presentations were used as a tool to improve final mark for the language course. Speaking tasks as rather formal requirement were implemented in those cases when language skills were trained with an aim to pass the final exam. Another issue observed both at school and university was that speaking in pairs was not treated seriously by the students. This diminished the role and effectiveness of the tasks. Still, some of the respondents referred to strong discipline in the classroom. Some teachers paid attention to those students who tend to speak less and motivated them to get involved in activities. Other teachers worked more with active students.

As it was assumed that the students at university follow their language learning practices and habits based on previous individual experience of English studies at school, they were asked to discuss this topic. The analysis of the students' opinion about factors influencing their perseverance in language studies at school is reflected in Table 1. After the factors were identified, the students were asked to rank them. Factors with both a positive and negative influence were identified. It should be emphasized that the same factors, for example, the group size or number of language lessons per week in different circumstances have opposite effect. Therefore, some factors appear in both sides of the Table 1 but with commentary.

The students agreed that their previous experience has impact on language studies at university. The results show that students choose passive rather than active role in language studies. Mostly students are not ready to read long texts, to study new words and grammar independently. The respondents referred as 'boring' to the study materials longer than one page and comprising complex professional terminology that in turn diminishes the level of their perseverance. The respondents handle scientific articles related to the subject field they study with difficulties and unwillingly. This means that normally students prefer

using study materials such as vocabulary of professional terminology prepared already by the university teacher instead of working on them by themselves thus improving their language skills and skills to work with information sources. The students admitted that they had to develop written vocabularies for new words in the primary school, and this method gradually disappeared in the secondary school. Respectively, most of the students do not continue writing glossaries and vocabularies in university.

Table 1

**Factors influencing the 1<sup>st</sup> year students' perseverance in language studies during the period of primary and secondary education**

Rank	Factors with a positive impact	Rank	Factors with a negative impact
1	Diversity of teaching methods and approaches focusing on different language skills	1	Number of lessons per week
2	Group size: small student groups	2	Group size: too big student groups
3	Feedback from a teacher (e.g., correction of accuracy mistakes in oral presentations and written texts)	3	Shortage of time for practicing speaking skills during classes
4	Number of lessons per week	4	Lack of opportunities to practice English in out-of-class activities
5	Inspiring personality and professionalism of a teacher	5	Unwillingness to learn vocabulary independently (making vocabularies, glossaries)
6	Opportunities to participate in out-of-class activities for the purpose of practicing English more frequently	6	Insufficient feedback from a teacher
7	Time for practicing speaking skills during classes	7	Passive involvement of students in the study process
8	Active involvement of students in the study process	8	Lack of interest
9	Learning vocabulary independently (making vocabularies, glossaries)	9	Inability to switch to different tasks

Asked about the motivation to use e-learning environment (e.g. Moodle) as a supplementary tool in language studies, the respondents expressed positive opinion; however, the students admitted that if the tasks in the Moodle were optional and were not assessed with a mark, they would be used less than in case the tasks were compulsory and included as a part of total assignment for the language course.

The 1<sup>st</sup> year students sometimes do not have motivation to study professional terminology as they do not see the link between language and its practical application; in other words, the 1<sup>st</sup> year students have not acquired yet specific knowledge of the profession they study even in Latvian, so they lose interest in English as they find it too complicated. Another issue is that students often lack learning skills and motivation to make efforts in general; language studies in that case is not an exception. Contemporary youth grasp long texts with difficulties; they prefer short extracts supported with visual materials. They would like to receive visual materials in the classroom. Respondents agreed that their perseverance to study English would be increased by stronger control of the teacher, for example, they prefer word and concept tests to tasks of translation professional terminology. The factors influencing students' perseverance in ESP studies at university are reflected in Table 2.

The analysis allows concluding that the students would feel more motivated and with higher perseverance in ESP if they had stronger control of the language teacher. They also expect greater contribution of the teacher instead of active process of self-education. Inability to switch to different types of tasks is characterized by the example that the students are used to very short texts in the English text books accompanied with pictures and therefore are not ready to study scientific articles and legislation comprising professional terminology. Opportunities of e-learning are welcomed but more likely in cases if tasks available in Moodle would be compulsory.

Table 2

**Factors influencing the 1<sup>st</sup> year students' perseverance in ESP studies**

Rank	Factors with a positive impact	Rank	Factors with a negative impact
1	Stronger control of the teacher	1	Inability to switch to different tasks
2	Tasks which require compulsory assessment	2	Lack of motivation to study professional terminology if students do not see the link with its practical application
3	Materials prepared by the teacher and teacher-lead study process	3	Lack of sufficient prior English language knowledge and skills
4	Group size: small student groups	4	Unwillingness to learn vocabulary independently (making vocabularies, glossaries)
5	Opportunity to use e-learning environment	5	Group size: too big student groups

**Conclusions**

1. The results of the research show that students choose passive rather than active role in language studies in university. They lack the necessary perseverance in order to achieve better results in studies. The respondents referred as 'boring' to the study materials longer than one page and comprising complex professional terminology that in turn diminishes the level of their perseverance.
2. Previous individual experience of English studies at school influences undergraduate students' perseverance. Former experience and learning skills are influenced greatly by the professionalism as well personality of language teachers at schools. The behaviour at schools has been transferred also to the university.
3. The 1<sup>st</sup> year students sometimes do not have motivation to study professional terminology as they do not see the link between language and its practical application; in other words, the 1<sup>st</sup> year students have not acquired yet specific knowledge of the subject field, so they lose interest in English as they find it too complicated. Another issue is that students often lack learning skills and motivation to put an effort in general.
4. The role of an institution and academic staff should be researched in further studies in increasing students' perseverance, since some studies indicate that teachers and instructors play an important part in the motivating students to improve their academic performance.

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## Student's Communication Activity in Small Group Learning

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**Abstract:** This paper analyzes students' communication activity in small-group learning. The study identified four types of learning groups: mixed-achievement group, unmixed-achievement group, mixed-gender group and unmixed-gender group. The aim of the study is to define the factors associated with the communication activity in each type of learning groups. In order to achieve this aim, the concept of communication activity and previous studies on communications in small-group learning were theoretically analyzed. In the empirical study, the communication activity in sixteen learning groups was analyzed. The study was carried out in Latvian X primary school during the period from February 2017 to May 2017, with a randomly selected sample of 58 participants (N=58) aged 12-14 years. In order to determine the factors affecting communication activity among the students while they are working in different types of small-group learning, the students were asked to fulfill self-assessment questionnaire at the end of the lesson. In the study reported here, three complex factors or dimensions that shape the communication activity were identified: engagement in the learning group, activity/passivity and success/failure. The study determined that the factors affecting communication activity in the mixed-achievement group and in the unmixed-achievement group can be both similar and different. A common factor of the communication activity in both types of learning groups is asking for help and/or offering support for group members. However, the communication activity in the mixed-achievement group is associated with the opportunity to express oneself creatively, and with making a significant contribution to the work of the group, but the communication activity in the unmixed-achievement group is determined by the fear of failure or the orientation towards success. It is also determined several factors of communication activity that affect the student's activity or passivity in the mixed-gender group. The results of the study provide an opportunity to better understand the benefits of different group compositions within the context of communication activity.

**Keywords:** communication activity, small-group learning, a primary school student, school education.

### Introduction

Group work in education is a teaching method and organization form that provides cooperation, interaction, and communication to accomplish a joint task. The idea of learning in groups has already been mentioned by J. Dewey at the beginning of the 20<sup>th</sup> century (Dewey, 2015). Nowadays, several studies have been carried out on the benefits of implementing group work in school learning process. For example, G. Schellenberg (Schellenberg et al., 2015) and his colleagues have found that children in 3<sup>rd</sup> and 4<sup>th</sup> grade, who are playing music in groups, have the opportunity to develop their prosocial skills. A study conducted by R. Gillies (Gillies, 2003) proves that structured learning in small groups promotes learning and socialization. He believes that students in group learning are more motivated to achieve high results than learning individually. Also, H. Shachar and S. Fischer in their study emphasize the positive impact of learning in groups on the student's motivation to achieve higher results (Shachar, Fischer, 2004). Despite the many benefits of using group work, the researchers have discovered some disadvantages to be considered. It is found that teachers are having some difficulties with preparing and structuring the group work, and in planning the suitable time to accomplish a certain task in the group (Gillies, Boyle, 2010). N. Webb's study proved that the role of a teacher is essential for students learning in small groups (Webb, 2009). The effectiveness of small-group learning is largely dependent on communication activity among primary school students. Passivity in small-group is mostly the reason why the learning group could not perform a given task successfully.

The concept "activity" is translated from Latin as a state of being active, briskness or liveliness (Harper, 2010). The meaning of activity in Cambridge dictionary is the situation in which a lot of things are happening, or people are moving around, or the work of a group to achieve an aim (Cambridge Dictionary, 2018). Activity is mostly associated with something that people do because they enjoy it, or it is interesting (Robinson, Davidson, 1999). The concept "activity" has a varied explanation, which is based on the cognition of a particular field of science. For example, in the encyclopedia of values,

activity is interpreted as a human action, which includes both physical and mental actions. Activity is triggered by external or internal motivation (Enzyklopadie der Werte..., 2018). In the psychology, activity is explained as ability in the context of personality (Leontyev, 2009), it must be analyzable in its dynamics and transformations, in its evolution and historical change (Engeström, 1987), it is related to good behavior and positive feelings (Fredricks, 2014). Meanwhile, the behavior is associated with constant choice and decision making. Lots of decisions should be made in learning group in order to perform a task successfully. The Russian researcher J. Feygenberg believes that a decision can be made in four ways to perform a task successfully. The first way is a correct answer with a confidence in the decision. The second way is a correct answer without a confidence in the decision. The third way is a wrong answer without a confidence in the decision. The fourth way is a wrong answer with a confidence in the decision (Feygenberg, 2014). Decisions can be made by compromise or consensus. Polarization is also possible when everyone stays at his or her point of view and cannot find a common solution. In the psychology, it is considered that making a joint decision is more difficult if the members of the group have a different value system, interests, and abilities (Corsini, Auerbach, 1998).

Three phenomena are identified by studying the concept “activity”. First of all, it may be a concrete individual action. Secondly, it may be a situation that is the opposite of passivity. The activity as a situation is based on the needs and interests of a primary school student and is expressed as internal readiness for action. Thirdly, it is an initiative to do and promote the occurrence of certain things. To make that happen, it is necessary to encourage the student in order to be fascinated with the work to be done. All of these three phenomena have one thing in common, that the activity associated with vigorousness and mobilization. In education, activity related to learning by doing and purposefulness. The student’s activity is purposeful, if it is aimed at fulfilling the task successfully, which in this study is reflected in the dimension of engagement, and it is characterized by a degree of intensity, which is reflected in the dimension of activity and passivity.

There are several forms and types of student’s activity. W. Bion has developed several forms of group activity. The first form of group activity is dependent on the leader of the group and his/her support for other group members. The second form of group activity is characterized by attacking each other or the avoidance of each other. The third form of group activity is aimed at one purpose to be achieved (Bion, 2004). We often face several forms of activity every day, such as communication activity, physical activity, mental activity, cognitive activity and creative activity. In the study reported here, the student’s communication activity in small-group learning was analyzed. The communication activity is understood within the framework of this study as an attitude characterized by energetic self-acting and aimed at achieving a goal.

The aim of the study is to define the factors associated with communication activity in mixed-achievement groups and unmixed- achievement groups, as well as in mixed-gender groups and unmixed-gender groups.

## Methodology

The study was carried out in Latvian X primary school during the period from February 2017 to May 2017. The study sample comprised 58 participants (N=58) aged 12-14 years, 37 girls and 21 boys, randomly selected and generalized to the target population (12-14 years old primary school students). Each participant was given a code, for example, G1 is given for the girls and B1 for the boys. The communication activity was analyzed in 16 learning groups. Seven groups contain three students each, eight groups contain four students each and one group contains five students each. Each group has a code in the study. The first symbol in the code is the title of the school subject, the second symbol is the grade, the third symbol is group number in the sequence and the fourth symbol indicates whether the learning group is unmixed-gender (UMG) or mixed-gender (MG). For example, the code could be G.8.1.UMG or M.7.3.MG.

Eight learning groups were unmixed-achievement groups and have got the following cods (G.8.1.UAG; G.8.4.UAG; S.6.1.UAG; S.6.3.UAG; M.7.3.UAG; V.7.1.UAG; V.7.2.UAG; V.7.4.UAG), and eight learning groups were mixed- achievement groups and have got the following cods (G.8.2.MAG; G.8.3.MAG; M.7.1MAG; M.7.2.MAG; M.7.4.MAG; S.6.2.MAG; S.6.4.MAG; V.7.3.MAG). Five learning groups were unmixed-gender groups and have got the following codes (G.8.1.UMG; G.8.2.UMG; G.8.3.UMG; G.8.4.UMG; V.7.4.UMG), and eleven learning groups were mixed-gender groups and have got the following codes (S.6.1.MG; S.6.2.MG; S.6.3.MG; S.6.4.MG; M.7.1.MG;

M.7.2.MG; M.7.3.MG; M.7.4.MG; V.7.1.MG; V.7.2.MG; V.7.3.MG). Four unmixed-gender groups contain girls only and one unmixed-gender group contains boys only.

The following research questions will be answered by the study.

- What are the factors associated with communication activity in the unmixed-achievement group and the in mixed-achievement group?
- What are the factors associated with communication activity in the unmixed-gender group and in the mixed-gender group?
- Is there a relationship between students' communication activities and the assessment of achievement?

An original self-assessment questionnaire was conducted to determine the communication activity in small-group learning. The questionnaire consisted of several statements, which should be assessed by each student using a six-point Likert scale. For data processing, the answer variants were transcoded into numbers: 6 – fully agree, 5 – agree, 4 – partially agree, 3 – partially disagree, 2 – disagree and 1 – fully disagree.

As a result of factor analysis, the study identified three complex factors or dimensions that shape communication activity in small-group learning. The first dimension is the activity or passivity of the members in the learning groups, the second one is the students' orientation toward success or failure and the third dimension is the students' engagement in the learning groups. The level of each dimension was indicated by three statements (Table 1).

Table 1

**Levels and indicators of study dimensions**

<b>Study dimensions</b>	<b>Level</b>	<b>Indicator</b>
Activity/passivity	High	Ask for help from group members and support them
	Middle	Sometimes ask for help and sometimes support group members
	Low	Do not ask for help and do not support group members
Success/failure	High	Dominate and active
	Middle	Sometimes dominate and sometimes active
	Low	Committed
Engagement in a learning group	High	The action is focused on the task, always creative and give a contribution to the group's work
	Middle	The action is partly focused on the task, sometimes is creative and has a partial contribution to the group's work
	Low	The action is not focused on the task, there is a shortage of creativity and does not contribute to the group's work

Each level of the study dimension was determined by a certain scaled score. The high level is from 4.34 to 6.00 points, the middle level is from 2.67 to 4.33 points and the low level is from 1 to 2.66 points. As a result of documents analysis, the assessment of each student's achievement in a concrete subject was defined.

Primary school students' communication activity in learning groups was analyzed during lessons on four school subjects – geography (code G), social sciences (code S), music (code M) and visual arts (code V). R. Fisher (Fisher, 2014) suggests that different types of tasks should be given to learning groups, such as interpretative discussion, problem-solving tasks or production tasks. The study reported here, in all subjects, the learning groups were given the same types of tasks, which are production tasks. The primary school students were divided into learning groups by subject teachers following the principle of randomness.

After group work, each respondent was given a self-assessment questionnaire to be filled without limited time. The questionnaire was not anonym. The respondents could ask any question to the questionnaire creator just in case of ambiguity or misunderstanding. The questionnaire was held in frontal view.

In quantitative data analysis, the Statistical Package for Social Sciences (SPSS software version 22) is used. The factor analysis is used to determine the mutual relations of questionnaire statements and distribute the complex factors. Cronbach's Alpha is used to determine and measure the internal consistency reliability of the complex factors or dimensions. Student's T-Test is used to check whether there is a statistically significant difference between the arithmetic means of the variables (unmixed-gender group and mixed-gender group; unmixed-achievement group and mixed-achievement group).

The Bivariate Pearson Correlation is used to measure the strength and direction of linear relationships between the variables. The correlation coefficient has statistically significant sigma of 0.01 and 0.05. The mean (M), standard deviation (SD) and standard deviation error (SE) of each statement and study dimension for the 16 learning groups were calculated.

## Results and discussion

Three study dimensions were used to determine communication activity in small-group learning: engagement in a learning group, activity/passivity and success/failure. One of the study questions is to find out what factors associated with students' communication activity in the unmixed-achievement group and in the mixed-achievement group. The results are reflected in Table 2.

Table 2

**Communication activity in unmixed and mixed-achievement groups**

Study dimensions		Unmixed-achievement groups (n=29)			Mixed-achievement groups (n=29)		
		M	SD	SE	M	SD	SE
Engagement in learning group*	1.	4.97	1.02	0.19	4.71	0.90	0.17
	2.	4.48	0.99	0.18	4.54	1.35	0.25
	3.	4.76	0.91	0.17	4.71	0.85	0.16
Activity/passivity**	4.	3.86	1.38	0.26	3.57	1.17	0.22
	5.	2.45	1.43	0.27	2.64	1.29	0.24
	6.	4.20	1.54	0.29	4.25	1.35	0.26
Success/failure***	7.	3.76	1.33	0.25	3.96	1.14	0.22
	8.	4.00	0.80	0.15	4.39	1.07	0.20
	9.	4.76	0.95	0.18	4.89	1.13	0.21

\* Engagement in learning group: 1. Contribution to group work is important 2. Creative engagement in fulfilling a task. 3. The action aimed at fulfilling a task.

\*\* Activity/passivity: 4. Listening more than speaking 5. Passive in group work. 6. Support and help group members.

\*\*\* Success/failure 7. Fear of failure or oriented to success 8. Being committed or dominated in group 9. Activity or passivity.

Students, engagement in a learning group is one of the study dimensions that shape communication activity. It is characterized by an action aimed at fulfilling a certain task successfully, creative expression and contribution to group work. The internal consistency reliability is high for this variable ( $\alpha=0.657$ ). The learning process is more effective if the student focuses on fulfilling the given task during the lesson. However, the communication activity among students in small-group learning may deviate from the objective of the task. Therefore, it is essential that each teacher should know and understand the factors affecting students' communication activity in small-group learning in order to encourage students to aim at fulfilling a certain task successfully. The study found that in both unmixed-achievement groups ( $r=0.372$ ;  $p<0.05$ ) and mixed-achievement groups ( $r=0.395$ ;  $p<0.05$ ), the students' communication activity could be aimed at fulfilling a task by giving the opportunity to express oneself creatively in group work.

Communication activity in the mixed-achievement group, which aimed at performing a task, is also determined by the degree of success in a concrete subject ( $r=0.500$ ;  $p<0.01$ ). It was found that primary school students with lower degrees of success are more cautious about engaging in the work of learning group because they think that they will not be able to deal with the given task ( $r=0.492$ ;  $p<0.01$ ). As a result of that, the students with lower degrees tend to be more committed ( $r=0.470$ ;  $p<0.05$ ) in mixed-

achievement groups and be always passive ( $r=0.543$ ;  $p<0.01$ ). In order to enable all students to be active and make an effective contribution to the work of the mixed-achievement group, more support and assistance are needed ( $r=0.398$ ;  $p<0.05$ ).

In the unmixed-achievement group, the degree of success plays a significant role in students' creative expression in learning group ( $r=0.490$ ;  $p<0.01$ ). A high degree of success in a concrete subject provides the students with confidence in their abilities. On the one hand, those students, who are convinced of their abilities, as well as more oriented towards success than failure, are less committed to the members of learning group ( $r=0.451$ ;  $p<0.01$ ) and their contribution to the work of the learning group is significant ( $r=0.330$ ;  $p<0.01$ ). On the other hand, those students, who are more committed to the group members than take the initiative and dominate, could not make a significant contribution to the work of group ( $r=0.322$ ;  $p<0.01$ ). If students do not like to be a member of learning group, it will be very difficult to engage them in performing a certain task. The study identified two factors that affect the students' wiliness to learn in small-group; the opportunity to acquire new knowledge and skills ( $r=0.486$ ;  $p<0.01$ ) and good discipline in the group ( $r=0.369$ ;  $p<0.01$ ).

Table 2 shows the statistical mean (M), the standard deviation (SD) and standard deviation error (SE) of all study dimensions in unmixed-achievement groups and mixed-achievement groups. The internal consistency of the average for both unmixed and mixed-achievement groups in all study dimensions is high enough ( $\alpha=0.456$ ). This will make it possible to compare students' communication activities in unmixed-achievement groups, as well as in mixed-achievement groups. The primary school students' engagement in both learning groups is at a high level, however, the dimension of activity or passivity indicates a middle level in both groups. The mean scores of the degree of success in both groups are the same as well. But a significant difference was found in the dimension of the orientation towards success or failure ( $\alpha<0.05$ ). The unmixed-achievement groups have a middle level, but the mixed- achievement groups have a high level. This means that the learning groups, which contain students with a high, optimal and sufficient degree of success, are less focused on the possibility that they will not able to deal with the given task and perform it successfully.

In the study was defined a question, which aimed to clarify the factors that affecting communication activity in mixed-gender groups and unmixed-gender groups. In this study, only mixed-gender groups were analyzed ( $\alpha=0.590$ ), because the internal consistency reliability of the study data obtained for unmixed-gender groups was very low. This may be due to an insufficient number of the unmixed-gender groups, which are included in the study. Both boys and girls are learning in mixed-gender groups. The study found that student's engagement in the mixed-gender group is directly related to his/her activity or passivity. The study dimension "activity or passivity" is characterized by speaking or listening, as well as offering support to the group members or being passive. The internal consistency of this dimension indicates a high degree of reliability ( $\alpha=0.576$ ). The study determined that there is a correlation between the indicators, which characterize the students' engagement in learning groups and the indicators, which characterize their activity or passivity ( $r=0.402$ ;  $p<0.01$ ). The activity of each student in learning group is dependent mostly on the solidarity among group members, the more the students are passive in a learning group, the less they will be able to work together to accomplish a joint task. If the student is passive in the mixed-gender group, then he/her will not offer a support for other group members ( $r=0.336$ ;  $p<0.05$ ). The study determined several factors affect the student's activity or passivity in mixed-gender group, such as the opportunity to be creative ( $r=0.479$ ;  $p<0.01$ ) and to be a leader ( $r=0.418$ ;  $p<0.01$ ), as well as the opportunity to give a significant contribution to the work of group ( $r=0.418$ ;  $p<0.01$ ) and to be oriented towards fulfilling a certain task successfully ( $r=0.336$ ;  $p<0.05$ ).

Table 3 shows the statistical mean (M), standard deviation (SD) and standard deviation error (SE) of all study dimensions in unmixed-gender groups and mixed-gender groups. Primary school students' engagement in mixed-gender groups is at a high level and the average degree of success is high as well, but the activity or passivity indicates a middle level. The orientation towards success or failure in the mixed-gender groups is at a middle level, but in the unmixed-gender group is high. By using Student's T-Test, it is determined that there is no statistically significant difference between the average scores of unmixed-gender groups and mixed-gender groups. Therefore, in order to compare the study dimensions and determine whether there are statistical regularities between unmixed-gender groups and mixed-gender groups, it is necessary to increase the number of unmixed-gender groups and repeat the study again.

Table 3

**Communication activity in mixed and unmixed- gender groups**

Study dimensions		Mixed-gender groups (n=41)			Unmixed-gender groups (n=17)		
		M	SD	SE	M	SD	SE
Engagement in learning group*	1.	4.78	1.04	0.16	5.00	0.71	0.17
	2.	4.44	1.30	0.20	4.65	0.70	0.17
	3.	4.73	0.92	0.14	4.82	0.81	0.12
Activity/passivity**	4.	3.80	1.40	0.21	3.41	0.94	0.23
	5.	2.78	1.41	0.22	1.94	0.97	0.23
	6.	4.10	1.46	0.23	4.57	1.33	0.32
Success/failure***	7.	3.78	1.15	0.18	4.18	1.47	0.36
	8.	4.17	1.00	0.16	4.35	0.93	0.23
	9.	4.73	1.07	0.17	5.06	0.90	0.22

\* Engagement in learning group: 1. Contribution to group work is important. 2. Creative engagement in fulfilling a task. 3. The action aimed at fulfilling a task.

\*\* Activity/passivity: 4. Listening more than speaking 5. Passive in group work. 6. Support and help group members.

\*\*\* Success/failure 7. Fear of failure or oriented to success 8. Being committed or dominated in group 9. Activity/passivity.

Several researchers have compared learning in different gender and achievement groups in their studies. For example, R. Gillies (Gillies, 2004) have conducted a study that identified the impact of cooperative learning on students, who studied in structured and unstructured cooperative groups. The students studied in different gender and achievement groups. The study included that students, who studied in structured groups, are more likely to work together, help each other and offer support to each other. The structured group is characterized by social responsibility for learning more than the unstructured one. S. Farivar (Farivar, 1992) studied the benefits of learning in mixed groups. The researcher compared how much students with high, middle and low degrees of success have learned. The study concluded that learning in mixed-achievement groups helps to break down interpersonal barriers between high, middle and low achieving students. The students also acknowledge learning in small groups. I. Florez and M. McCaslin (Florez, McCaslin, 2008) have collected the students' perspectives on learning in small groups. The researchers concluded that students have a positive perspective on learning in small groups.

## Conclusions

Small-group learning is a recommended teaching method and organizational form that should be included in the learning process. Before implementing this method in the classroom, it is important to understand the risks, which are mostly related to students' extreme expressions and reactions. For example, a student is not active in communicating with group members or dominates and fully subordinates the work of learning group to his/her interests and needs. In order to enable communication activity among the members in small-group, mutual trust and solidarity are required. It could be happening by asking for help from group members or/and offering support to other members. The study found that this factor affects the communication activity of each student in both unmixed-achievement groups and mixed-achievement groups. Besides asking for help or/and offering support there are other factors that could affect the communication activity of each primary school student. The study determined that the factors affecting communication activity could be different in unmixed- achievement groups and mixed-achievement groups. The communication activity in the mixed-achievement group is mostly associated with the opportunity to be creative and to give a significant contribution to the work of the group, but in the unmixed-achievement group, the communication activity is determined by fear from failure or orientation towards success. It was also found that the degree of success in the mixed-achievement group affects the progress towards the task being performed.

It is important in the learning group, not only to speak but also the ability to listen because the listening skill is much more than information perception by hearing organs. It is just as active communication as

speaking, it requires concentration, mental activity and focusing on the other. It is an active engagement in the learning process. The study found that students' desire to listen more than speak in the mixed-achievement group is related to subordination or dominance ( $r=0.408$ ;  $p<0,05$ ), but in the unmixed-achievement group, there were not found any significant affecting of speaking or listening.

A student's engagement in the mixed-gender group is related to activity or passivity. The student's activity in mixed-gender group is affected by factors such as the opportunity to be creative and to be a leader, who can control the situation, as well as the opportunity to give significant contribution to the work of group and to be oriented towards fulfilling a certain task successfully.

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## The Contribution of Mathematics to the Engineering Education in the Students' Assessment

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**Abstract:** Mathematics studies have an impact on achieving the necessary outcomes in engineering education both directly and indirectly. First, mathematics serves as a tool for solving and calculating various problems. Second, mathematics studies develop mathematical competences such as the ability to ask and answer questions in and with mathematics, and the ability to deal with mathematical language and tools. More than 100 first-year students from the Faculty of Information Technology and Faculty of Engineering of the Latvia University of Life Sciences and Technologies who studied mathematics in 2016/2017 study year and more than 70 second-year students from the same faculties who are studying in 2017/2018 were surveyed. The aim of the study is to identify the contribution of mathematics studies in engineering education in assessment of students. Comparing their own competences before studying mathematics in university and after completion of the higher mathematics course students recognized improvement of the mathematical competences and identified importance of maths studies in engineering education.

**Keywords:** university education, mathematics, competences, students' assessment.

### Introduction

Many researches in engineering education emphasize the need for engineer educators to adapt to the changes of the 21st century both in the engineering profession and in student populations. Exponential growth for scientific information cause difficulties for universities to provide students with all the knowledge and skills that will be needed for the whole working life. Therefore, in engineering programs, the contribution and scope of each study course is being evaluated. Therefore, the question arises: is mathematics an important part of engineer education in the 21st century? Mathematics is often regarded as an object that is hard to understand for students (Prakash, Jerlin, Fernandes, 2014).

We can ask: "What is mathematics in the context of engineering education?" – a language? a mental discipline? a set of techniques? One may say of engineering that it is concerned with physical systems whose behaviour must be (Scanlan, 2006):

- understood qualitatively,
- analysed quantitatively,
- designed to behave in a desired manner.

The first task requires understanding physics, biology, chemistry and mathematics education plays a secondary role, but to be able to analyse quantitatively (second task), mathematical education is required.

In the last twenty years, both new demands of the engineering profession and inadequate **mathematics** ability of the engineering students have led to a big change in the scope of the mathematics education (Uysal, 2014). The advancements in modern technology have introduced changes in engineering mathematics studies and have provided students with an opportunity to use modern technologies and methods. Therefore, there is much debate as to how these changes should be addressed (Broadbridge, Henderson, 2008).

Engineering institutions are faced with a problem like:

- the reduction of mathematical skills of entering engineering students,
- the reduction of mathematical content and course hours,
- the difficulty of teaching large classes,
- the lack of mathematics staff,
- increasing the diversity of students' mathematical backgrounds as the number of international students increases,
- to cater for mathematical needs for all engineering disciplines in one subject and the difficulty of reaching a shared understanding between the mathematics and engineering departments about what is to be included in the curriculum.

Insufficient skills in basic mathematics cause problems for those majoring in engineering at university level. The one of the most important skills required of engineering students are problem solving and creative thinking, but they have some difficulties in these issues (Adams et al., 2007).

**The aim** of the study is to identify the contribution of mathematics in engineering education as well as to identify importance of mathematics studies in assessment of students.

### Methodology

More than 100 first-year students from the Faculty of Information Technology and Faculty of Engineering of the Latvia University of Life Sciences and Technologies who studied mathematics in 2016/2017 study year and more than 70 second-year students from the same faculties who are studying in 2017/2018 were surveyed.

### Theoretical background of mathematical competences

Mathematics studies have an impact on achieving the necessary outcomes in engineering education both directly and indirectly (Zeidmane, 2012). First, mathematics serves as a tool for solving and calculating various problems. However, much greater is an indirect impact of mathematics, which provides other outcomes (Figure 1).

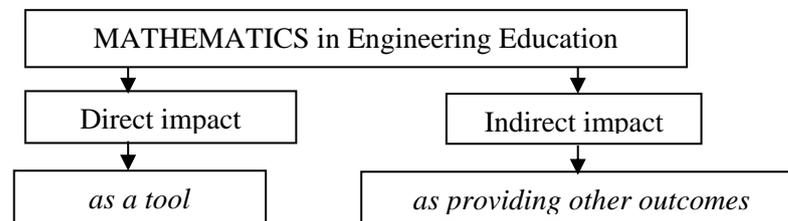


Figure 1. Mathematics impact on Engineering Education.

Extensive study has focused on mathematical competences. What is the mathematical competence? One could also say that a mathematical competence is a well-informed readiness to act appropriately in situations involving a certain type of mathematical challenge (Niss, Hojgaard, 2011). Each competence, based on actual knowledge and specific skills, allows to take certain mathematical activities. Eight mathematical competences are recognized, divided into two groups: *ability to ask and answer questions in and with mathematics* and the *ability to deal with mathematical language and tools* (Figure 2.)

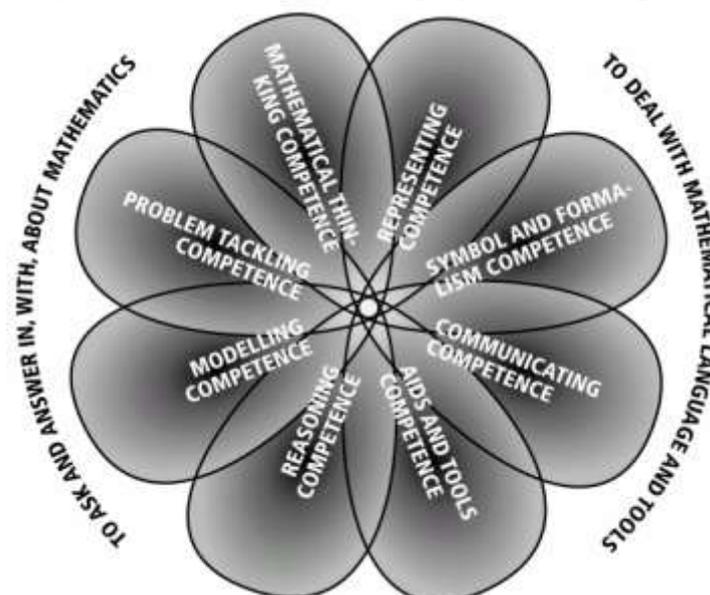


Figure 2. A visual representation of the "KOM (Competences and the Learning of Mathematics) flower" of the eight mathematical competences presented and exemplified in the KOM report (Niss, Hojgaard, 2002).

The first competence group "Being able to ask and answer questions in and with mathematics" combines the following competences:

- mathematical thinking competence – mastering mathematical modes of thought; this competence includes understanding the types of math questions, the ability to ask such questions and an overview of what answers can be expected;
- problem tackling competence – formulating and solving mathematical problems; this competence means the ability to formulate, separate, and clarify various mathematical problems and the ability to solve them in different ways;
- modelling competence – being able to analyse and build mathematical models concerning other areas. Modelling contains a range of different elements: the ability to structure the real area or situation, the ability to implement a mathematization of this situation, the ability to work with the resulting model (solving the mathematical problems, assessing), the ability to monitor and control the entire modelling process;
- reasoning competence – being able to reason mathematically. This competence means the ability to follow and assess mathematic reasoning, knowing and understanding what a mathematical proof.

The second competence group "Being able to handle mathematical language and tools" combines the below described competences:

- representing competence – being able to handle different representations of mathematical entities; this competence means the ability to understand and utilise different representations of mathematical objects and problems as well as to understand the reciprocal relations between different representational forms of the same entity;
- symbol and formalism competence – being able to handle symbol and formal mathematical language. This competence means the ability to decode, translate and handle symbolic statements;
- communicating competence – being able to communicate in, with, and about mathematics. This competence means the ability to understand and interpret expressions and texts;
- Aids and tools competence – being able to make use of and relate to the aids and tools of mathematics (incl. ICT); this competence means having knowledge of the existence and properties of the diverse forms of relevant tools used in mathematics and the ability to use such aids.

Mathematics teachers need to think about how to develop these competences by introducing new teaching methods and knowing how much these competences can be developed by teaching specific mathematical content, for example, by completing table in Appendix. For example, on the one hand, by learning arithmetic, students develop mathematical thinking, symbol and formalism competences, little reasoning, but by learning geometry, students without the aforementioned competences should also develop modelling, reasoning and problem tackling competences. The teacher may choose which aids and tools to use and how much. On the other hand, teacher can choose easier tasks, solution of which requires only some competences, or more difficult tasks, the solution of which develops all mathematical competences in each topic.

In order to improve the mathematical learning process, students' motivation needs to be increased. Students should be aware of both the application of mathematics and what competences are acquired through learning mathematics.

## Results and discussion

More than 100 first-year students (the principle of occasional selection) from the Faculty of Information Technology and Faculty of Engineering of the Latvia University of Life Sciences and Technologies were surveyed in order to identify the student's opinions regarding mathematical competences acquired in secondary schools. In the survey, students mentioned mathematical competences such as the use of symbol language, mathematical representation, problem solving, opinion formation and others as well as assessed how the corresponding competence has been acquired (Figure 3), except for communication competence this because this competence can be developed only indirectly studying mathematics one year.

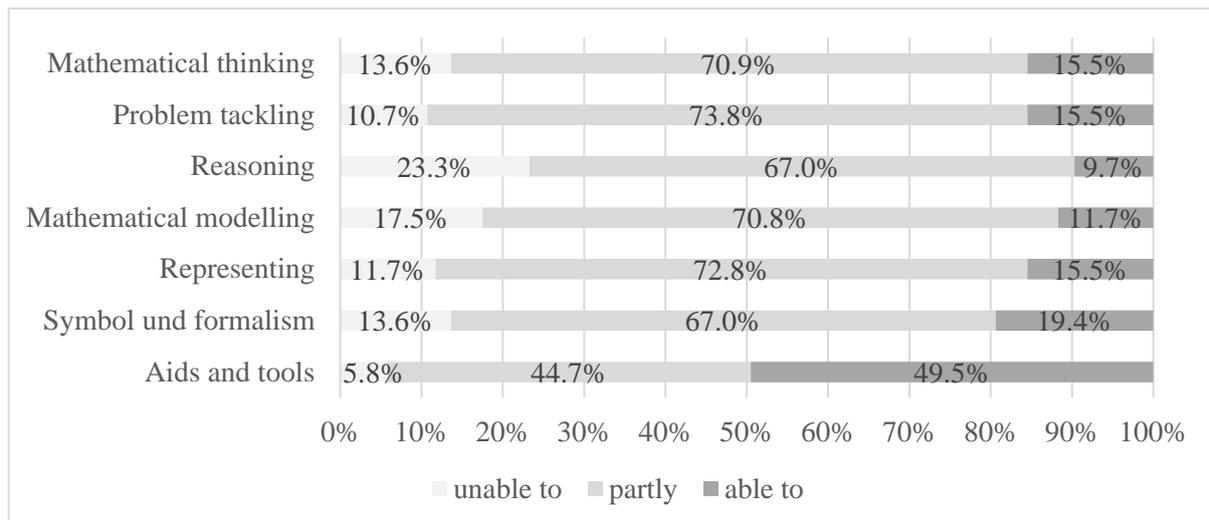


Figure 3. The results of the first-year engineering students' competences assessment at the beginning of the Higher Mathematics course.

The results show that the largest part of respondents consider that their competences have been developed partly. Almost 50 % of engineering students evaluate using ability of mathematical packages as the most well-developed competence (median = "partly", mode = "able to"). As the second better-developed competence the using of symbol language, which was acquired by 19.4 % of students. It is sad to note that 23.3 % of engineering students consider that they cannot form their opinion (mode=median = "partly"), 17.5 % are unable to perform mathematical modelling (mode = median = "partly"), 13.6 % of students are unable to use symbol language (mode = median = "partly"). More than 10 % of students consider that they are unable to solve problems and have not developed mathematical thinking (mode = median = "partly").

Correlation analysis exploring bivariate correlation with the calculation of Spearman's correlation coefficient was performed in the study. As the results of the analysis indicate there exists a weak positive correlation between CE score and mathematical thinking competence ( $r_s=0.345$ ,  $p=0.01$ ). In other cases, a significant correlation between CE score and other competences was not detected. Examining the correlation between competences revealed positive moderate correlation between mathematical thinking and the opinion formation ( $r_s=0.489$ ,  $p=0.01$ ), between the opinion formation and mathematical symbol language understanding ( $r_s=0.447$ ,  $p=0.01$ ), between the opinion formation and mathematical modelling ( $r_s=0.402$ ,  $p=0.01$ ), between opinion formation and mathematical presentment ( $r_s=0.418$ ,  $p=0.01$ ), as well as between mathematical symbol language understanding and mathematical presentment ( $r_s=0.482$ ,  $p=0.01$ ). It can be concluded on the basis of these results that knowledge of one competence contributes to the development of the other competence and vice versa.

In order to determine which of the mathematical competences for the students of the engineering faculties are important, and if students are ready to invest the necessary effort to obtain these skills during studies at the university, the second survey was carried out. This survey contains the practical mathematical skills required for mathematics studies.

The results were compared with the results of previous years (Zeidmane, Sergejeva, 2013). The results show that students' attitude towards the acquisition of mathematical competence has not changed much: not everyone is ready to invest serious effort in the development of these competences (Table 1).

During the survey students were asked to evaluate their abilities regarding to their mathematical skills and their willingness to devote time to develop these skills. As results show more than a half (54.2 %) of students consider that **symbol and formal mathematical language** knowledge and ability to "translate" real-life tasks to symbol language are most necessary skills and they express readiness to invest the necessary effort to develop these skills. However, at the same time other students are not at all ready or willing to invest a minimum effort to develop partly or acquire these skills. Almost the fifth of students (17.7 %) consider that skills level acquired at school is sufficient and believe that there is no need to develop these skills further. A similar opinion is expressed by students of IT software using skill for mathematical calculations. It is not a surprise because the ability to use IT provides several benefits

to students such as the ability to check correctness of the result, make calculations automatically and get results faster, the ability to display results in a smoother graphic, as well as create smart programmes for some method implementation.

Table 1

**The results of the survey on students' mathematical skills and the readiness to acquire them (%)**

No	Readiness Mathematical skills	I would like to get these skills, doing nothing	I have partially mastered these skills at school and believe that there is no need to further develop the skills	I am ready to invest the minimum effort to just get the minimum positive evaluation	I am ready to invest the necessary effort to obtain these skills at the highest possible level
1	to move to the formal language, using mathematical symbols	10.2	17.7	18.8	54.2
2	to create a series of logical conclusion, using the formal language	2.8	31.2	19.2	47.3
3	to find the necessary solution method by selecting from a large number of methods	12.5	20.2	30.9	29.0
4	to use formal rules of mathematics in real situations	9.2	21.3	19.1	46.2
5	to use IT programs for mathematical calculations	9.3	19.6	19.1	51.8
6	to mobilize and concentrate relatively long time to solve problems	12.1	26.3	13.9	48.2
7	to manage time and choose priorities	8.5	33.1	14.5	43.6

More than 47 % of engineering students consider that the skill “to create a series of logical conclusion using the formal language” is very important skills and they are ready to invest the necessary effort to obtain this skill at the highest possible level. At the same time, 2.8 % of students would like to obtain this skill doing nothing. Mathematics indirectly develops a very important skill to find the **necessary solution** method by selecting from a large number of methods, which requires time and effort. Unfortunately, only 29 % of engineering students are aware of its necessity and are ready to invest the required effort for its development at the highest level.

Studying mathematics, many students have a problem mobilizing themselves and concentrating their attention for a relatively long-time period to solve problems. It is surprising that only 48.2 % of students understand its importance and are ready to invest the required effort for its development. 13.9 % of students are ready to invest minimum of effort in order just to pass the course. 26.3 % of students are satisfied with the level of this skill acquired at school.

Inability to manage their time and choose priorities is not a less important problem for the first-year students. The proof of this is: home works which are not submitted on time, attending consultation only after a failed test. Incorrect choice of priorities and laziness are some of the reasons for large dropout numbers among the first-year students. Unfortunately, 14.5 % of students are ready to invest the minimum effort to develop this skill.

The third questionnaire was created to determine which mathematical competences students had acquired or developed studying mathematics at the Latvia University of Life Sciences and Technologies. The second and third year students of engineering faculties participated in this survey (Figure 4).

As indicated by the results of the survey, only one student noted that he does not have one competence after completing higher mathematic study course, although the answer “unable to” was included on the answers' list. According to the obtained results, studying of mathematics' course allows students to develop the mathematical competences. All students who participated in the questionnaire recognized that

they are able (60 %) or able better (40 %) to use specialized software for solving mathematical problems. The study results confirm that inclusion of the work with Mathcad and Matlab in the course of mathematics is justified and facilitates students' competence to work with specialized maths packages.

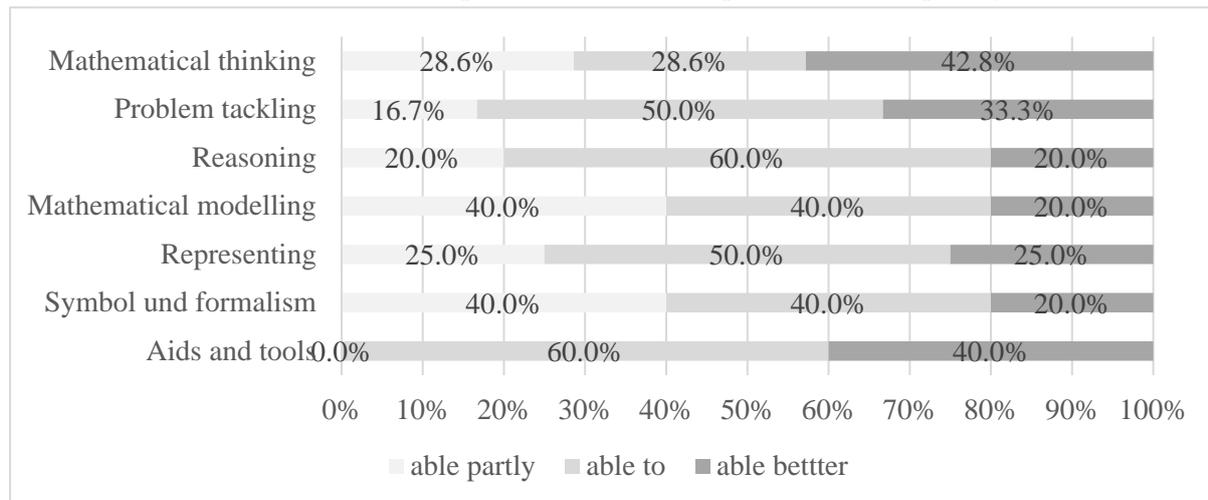


Figure 4. The results of the second and third year engineering students' competences assessment after completion of the Higher Mathematics course.

It is encouraging that 42.8 % of students believe that they have better developed the mathematical thinking competence. Nevertheless, 28.6 % of students have admitted that they mastered this competence still partly (mode = "able better"). The third part (33.3 %) of students consider that their problem-solving competence (mode = median = "able to") has become better after the mathematics course. A quarter (25 %) of students have improved mathematical presentment (mode = median = "able to"). The fifth part (20 %) consider that they are able better form opinions (mode = median = "able to"), use mathematical formal and symbol language (mode=median="able to"), as well as perform mathematical modelling (mode = median = "able to").

The questionnaire also included open questions in order to find out students' opinion and knowledge. One of the questions was: "Does higher mathematics affect the successful study of other courses?" Summarizing students' opinions, the obtained results show that 60 % of students confess that higher mathematics course has contributed to the acquisition of other courses such as physics, programming and courses which require to work regularly and deliver the tasks on time to get an accumulative assessment at the exam. It can be concluded that the higher mathematics course allows students to improve such competences as time management and attention concentration.

## Conclusions

- Mathematics studies have an impact on achieving the necessary outcomes in engineering education both directly and indirectly. First, mathematics serves as a tool for solving and calculating various problems. Second, mathematics studies develop mathematical competences such as the ability to ask and answer questions in and with mathematics and the ability to deal with mathematical language and tools.
- The first survey of the first-year students shows that about 10 % have not acquired mathematical competences during studying in secondary school, and only 15 % of students admit that they have mastered these competences.
- It is gratifying that according to the results of the third survey, all students acknowledged that they had acquired mathematical competences, while 42.9 % of the second and third year students acknowledged that they had improved their mathematical thinking competence, 40 % had improved the competence of using mathematical packages, 33.3 % had improved their problem-solving skills. Only some part of the second and third year students that participated in the survey recognized that some competences they have developed partly.
- As results of the second survey show more than a half of students consider that symbol and formal mathematical language knowledge and the skill "to create a series of logical conclusion using the

formal language” is a very necessary skill and are ready to invest the necessary effort to obtain this skill at the highest possible level. At the same time, 2.8 % of students would like to get this skill doing nothing.

- The ability to manage time and choose priorities is not a less important problem for the first-year students. As the proof of it, there are home works that have not been submitted on time, attendance of consultation only after a failed test. This is one of the reasons for a large dropout number among the first-year students. Unfortunately, 14.5 % of students are ready to invest the minimum effort to develop this skill.

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## APPENDIX

### Rates of the competences development teaching specific mathematical content

Competence	Subject area	Arithmetic	Algebra	Geometry	Derivatives	Integrals	Differ. Equat.	Series
Mathematical thinking								
Problem tackling								
Modelling								
Reasoning								
Representing								
Symbol and formalism								
Communication								
Aids and tools								

## The Role of Student Cooperatives in Education in Poland in the 21st Century

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**Abstract:** Consumerism and globalization characterizing 21st century societies restrict the freedom of choice of the consumer and the citizen. These phenomena, however, did not deprive people of the desire to influence their own lives and to follow the values of self-help and solidarity with one's neighbour. The cooperative is a proven tool for realizing the idea of civil society. In particular, student cooperatives in Poland have demonstrated their impact on education and youth upbringing, entrepreneurial attitudes and participation in democracy at the beginning of the 20th century. At present, this phenomenon revives. In spite of the prevailing attitudes of rivalry and individualism in schools, actions common to the good of the public are promoted. The aim of the article is to identify the role of student cooperatives in the 21st century in education and upbringing, the shaping of entrepreneurial attitudes and the value of work and democracy in Poland. The objective was achieved through a survey conducted in primary and secondary schools in Podlaskie Voivodeship. An analysis was also made of the data from the following websites: Foundation for Development of Student Cooperative, National Cooperative Council and Civic Education Center. Literature and results of student cooperative research were also reviewed in order to get acquainted with current state of knowledge on this topic and to identify important gaps in student cooperative research in Podlaskie voivodship. The results of the research confirm the historical experience of student cooperatives in Poland as a tool in education in general and education of youth in the 21st century. The activity of students in a cooperative contributes to the absorption of market principles, the basics of marketing, and this market orientation facilitates their later start in the labor market. A cooperative shape a civic attitude by indicating that the goal of the action is the good of the community, the action in the group, the sense of community, responsibility, a sense of trust in others. The involvement of teachers as cooperative careers, who are close to cooperative ideas, determines the creation and development of student cooperatives. The lack of regulation in this area despite the support of the "adult" cooperatives is a barrier to the activity of student cooperatives in Poland.

**Keywords:** entrepreneurship education, student cooperative, volunteering, democracy, Poland, school education.

### Introduction

The modern education system prefers shaping the attitudes of competition and the pursuit of material success. On the other hand, school teaches teamwork, shows the value of work, entrepreneurship and activates democratic attitudes although we still can see "rat race" as dominant attitude. At present however, student cooperatives movement which in Poland dates back to 1900 at present revives.

Cooperative work is a common work for common interests. Historian of the Rochdale Pioneers, G.J. Holyoake wrote, "They put principle first and profit second, believing, that principle was the foundation honourable profit, and only honest source of it... Like Diogenes, they went in search of honest profit by light of principle, and they found it in honest co-operation" (Holyoake, 1918, 184). Cooperatives are associations of people who combine their resources and organize an enterprise to meet their needs. Cooperatives are managed by ordinary people and operate for the benefit of ordinary people. They must be organized in such a way, so that their members can easily understand and control them. Simplicity should be a key feature of any organization, unnecessary complexity should be avoided (Parnell, 2014). "Not for profit, not for charitable purposes, but for services" is a concise and accurate descriptor for the entire cooperative sector (Lund, 2013, 4). In the 21st century, globalization influences the functioning of cooperatives (Novkovic, Sena, 2014). In the twenty-first century, cooperatives are a response to political capitalism, colonial capitalism - globalization of profit, exclusion and indifference - decrease in the resources of social capital. The globally organised corporate world in conjunction with the local problems of producers and consumers, in the latter evokes efforts to create alternatives to the current dominant manner of production and consumption. Just as in the nineteenth century, an alternative is presented by food co-operatives (Zimnoch, 2016). Recent years have witnessed a new interest in co-operative organisations, especially as a consequence of their transformation and expansion in new fields of activity. In particular, the capacity of cooperatives to assume a number of forms consistent with

the socio-economic environment in which they are situated deserves special attention, as well as cooperative identity and the organisational and legal frameworks so far developed as a result of cooperative evolution (Borzaga, Spear, 2004). Current economic cooperative theories alone are insufficient to define all aspects of cooperation's substance and advantages. Therefore, it is necessary to propose new, interdisciplinary research (including a comprehensive theoretical overview) on cooperation's substance and emphasise the importance of gathering insights across the social sciences, using the results and common findings of economics, law, marketing, financing, organisational studies, management sciences ("hard" sciences), and also some elements of philosophy, psychology and sociology ("soft" disciplines). This would be based on a positive (economic-analytical) scientific approach. It would differ from the ideological normative approach toward cooperatives, since it would preserve its scientific character and neutrality, untainted by political and social designs (Szabo, 2006).

Cooperatives played a great role in preserving Polish property and national consciousness during the Partitions of Poland. Polish theorists and cooperative practitioners emphasized in particular its socio-educational role, manifested in cooperation, mutual assistance, social awareness and self-management. Cooperatives opposed egoism and the pursuit of profit, taught social work, solidarity and created favourable conditions for the poorest social strata, cooperatives pursued systematic educational and propaganda activities, promoted self-education in general and self-education of cooperative members, and contributed to raise of the socio-cultural standard of living of people.

After regaining independence in 1918 by Poland, the cooperative movement had the great support of Polish politicians, representatives of the world of science and culture. The law created favourable conditions for the cooperatives. Especially the educational law of 1932- which put special emphasis on education and economic education as one of the elements of state education. This law has created favourable conditions for the development of student co-operatives and introduced new content related to economic education and cooperative education to curricula. One of the ways to fulfil the indications contained in educational law was student cooperative (Magiera, 2011, 109).

The development of cooperative societies was a time when the pedagogical ideas of new education were transferred to Poland from Western Europe and the United States of America. These ideas supported all educational measures aimed at stimulating students' activity and preparing them for practical life. One of the conditions for the development of student co-operation in Polish Secondary Education was the cooperation of families and schools (Brzozowska-Wabik, 2015). Publications and pedagogical literature of the interwar period devote much space to the cooperation of the family and the school, emphasizing the need for mutual respect, trust, kindness, leaving the parents of the initiative. It was in the student cooperatives that J. Dewey's recommendation was made, saying that the school should be a real active life rather than being preparation for life (Dewey, 1909, 11).

By the outbreak of World War II there were about 8,000 in Poland student cooperative. They were in about 30 % of all schools. The German occupation period has survived only a dozen of them. Others were liquidated following the mass closures of schools by occupation authorities. After II world war, in the aftermath of the new socio-political situation, the cooperative movement has rapidly revived, including the activities of student cooperatives. At after war years, the ruling communists at first did not create many obstacles in this area of social action, treating them as "progressive" grassroots initiatives of the "masses". In 1947 the process of self-government and autonomy of the cooperative began, and then they were liquidated in subsequent years. In the years 1950-55, the state took over the property and liquidated most of the cooperatives operating there, including more than 14 thousand of students' cooperatives. At the time cooperative societies accounted for about 1.5 million members.

After the Second World War, the communist authorities in Poland and other Soviet satellites used the cooperative idea to expropriate farmers and pre-war cooperatives. They expropriated their property and reduced the freedom of individuals. These actions had nothing to do with the cooperative paradigm. It was only after the political changes in 1956 that the cooperative movement began to revive again, and the cooperative activities also resumed. In the 1970s, Polish student cooperatives, beside French, British, Swedish and Danish, were among the most active and best organized. In this period, numerous publications were published in the form of instructors for the students and tutors of the cooperative. Within the student cooperative were binders, hairdressing salons, photographic studios, toys and wicker plants, and even tailor and knitting. The School Savings Accounts educated the habit of saving, and they

were transformed into Cooperative Cash. A significant event for Polish young cooperatives became their participation in the UNESCO-organized International Symposium on School Cooperatives in December 1979 in Paris. Cooperation in Poland was also a form of rehabilitation and education for the disabled. Scientific literature on Polish rehabilitation school is vast. The International Labour Organization (ILO) entrusted the Association of the Cooperatives of the Disabled in 1974 and 1977 to organize seminars aimed at acquainting participants with the Polish model of solving the problem of employing the disabled in the form of cooperative enterprises. The result of these seminars was the publication of 'Cooperatives of the disabled: organization and development' (Cooper, 1979).

Systemic transformations initiated in 1989 did not favour the development of cooperatives, including the student cooperatives. In the beginning of the 90's among 18 thousand recorded as active in the previous years, there survived only 3,000 as working cooperatives. In the transformation period, student cooperatives, like all cooperatives, were viewed as connected with compulsory collectivization. The legacy of communism has had a profound impact on the public perception of the cooperative sector in Poland, and it continues to weigh heavily on the position and prospects of the cooperative movement in the country. The Polish cooperative movement, in spite of its long-lasting and successful history, became totally discredited in public opinion at the beginning of the 1990s. This included not only co-operatives as existing organizations, but even the notion of 'cooperation' (Piechowski, 1999). The neo-liberal ideology adopted during transition has favoured market led economic reforms and commercial privatization over other forms of property, including a cooperative type of ownership. Although since 1989, formally, the cooperative sector has become a part of the private sector, it has not received political recognition, except for credit cooperatives (Les, 2004, 194).

Due to financial problems in the regional associations of cooperatives of the "Samopomoc Chlopska" (Peasant Self-help) and PSS "Spolem" (Universal Cooperative Grocers), the positions of employees responsible for the activities of the student cooperative and their care were removed. In order to prevent the collapse of this kind of activity and to support the Cooperative Student Initiative, the Foundation for the Development of Student Cooperative, based in Cracow, was established in 1991 under the patronage of the Ministry of National Education and Sport and the National Cooperative Council. The Foundation raises ideas and cooperative values among all kindergarten students. It represents the interests of student cooperative activities, takes action to obtain interpretations of laws and regulations.

In Poland in the year 2011, over 5000 student cooperative societies in primary and post-primary schools were active, primarily in Malopolskie, Shlaskie, Shwietokrzyskie, Mazowieckie and Warmia-Mazurskie Voivodeships. There are about 300,000 students participating. In student cooperatives, the same rules apply to the selection of self-government bodies as in other types of cooperatives. Statutes of Cooperative Societies are based on Cooperative Law and international cooperative rules. The functioning of Cooperative Societies is based on the great social involvement of many cooperative activists, cooperative care specialists and student cooperative instructors. There are no formal and legal solutions for this type of cooperative. Student cooperatives do not have a separate legal entity. They work in school structures in accordance with the Education System Act - art. 56 (*International Cooperative Alliance*, 2017).

Cooperatives are a material base to preserve values. These are the values that are universal, because they constitute the basis for joint action. They are explicitly reflected in cooperative principles. And because it is not only writing, but a daily implementation; the cooperative paradigm of development performs a construction of civil society. Cooperative democracy, by giving each member one vote equally, preserves respect for human, his values and goals. Democracy in a cooperative allows being a free man in economic life, the sovereign of one's own life and the co-sovereign of a joint life (Mazur, Zimnoch, 2017, 156). Authors writing today about cooperatives explain values in which members of a cooperative believe, based on tradition of their founders: ethical values of honesty, openness, social responsibility and caring for others (MacPherson, 2004, 39).

The aim of the study is an indication of the role of student cooperatives in the 21st century in education and upbringing, shaping entrepreneurial attitudes and values of work and democracy in Poland. The author depends in particular on the role of cooperatives in the activity of schools in the Podlaskie Voivodeship

## Methodology

In the Podlaskie Voivodeship operate 630 primary and secondary schools. The study was conducted in schools with the largest number of students. An online survey was sent to the management of 220 such schools. The results of the survey came from 61 schools. The questionnaire was sent via e-mail with a link to the internet system where the tool was placed. The question was asked: what kind of activities have been used by the school in activating entrepreneurship and democracy, and whether the educational work of the school should be intensified and whether school have working student cooperative or school savings scheme or school shop. The study was conducted from 1 to 30 June 2017. The respondents gave 43 basic schools, 13 junior high schools and 5 upper secondary schools. The respondents indicated 57 % of responses from urban schools and 43 % of responses from rural schools.

An analysis was also made of data from the following websites: Foundation for Development of Student Cooperative, National Cooperative Council and Civic Education Center. The literature review and the results of the student cooperative research were reviewed in order to get familiar with current state of knowledge on the topic and to identify important gaps in student cooperative research in the Podlaskie Voivodeship. The results were also referred to research in other countries.

## Results and Discussion

The principle of education, expressed in rules guaranteeing a provision of funds to invest in human capital, demonstrates the cooperatives' socially responsible dimension (*Recent evolutions of the Social...*, 2016, 26-27). Education on cooperatives should start as soon as possible, at the primary school, and should be recognized by the educational system of each country in order to be effective. Likewise, education on cooperatives should be related to the real world of cooperative enterprise, providing students with the possibility of doing an internship in a cooperative, for instance (*Cooperative entrepreneurship and education...*, 2013).

For several years in Poland there has been an increase in interest in student cooperatives. This is also confirmed by government actions. The government approved in 2014 a strategic document - the National Program for the Development of Social Economy. According to this document, in 2020, student cooperatives should operate in at least 10 % of schools in Poland (Brzozowska-Wabik, 2015).

For comparison the percentage of German schools running a school firm is estimated at about 12 %. There are virtually no school firms at primary schools, which means that about a quarter of all secondary schools have a school firm (Von Ravensburg, 2017, 6). In Norway the percentage of schools running a cooperative is 42 % (Odegard, 2007, 16).

Pupils' cooperatives are special school firms, modelled on the German real world cooperative modus including quasi-registration, annual audit and partnership with real-world coops. The waiting list of School firms wanting to become Pupils' cooperatives is long, but the promoting cooperative federations usually limit the numbers newly accepted each year. In most cases, a Regional Cooperative Federation initiating pupils' cooperatives in their territory does so from the wish to popularize the cooperative form of organization. Since the German cooperative system is strictly member oriented and governed bottom up, it needs to convince its member cooperatives. All participating primary cooperatives in turn have to engage themselves with money as well as manpower. A substantial number of them think it worthwhile, and the number of pupils' cooperatives has increased exponentially over the years (Von Ravensburg, 2017, 32).

A student co-operative, as a student organization operating on a school premises, may conduct activities in the various areas specified in the Model Statute Foundation for Development of Student Cooperative (*Fundacja Rozwoju Spoldzielczosci...*, 2017):

- production of didactic aids for the needs of the school and other interested cooperatives, the collection and completion of natural specimens, the pursuit of small-scale production and the provision of uncomplicated services,
- crop and livestock farming,
- actions for ecology and the environment,
- organizing collective forest fleece collection, and recycling of materials,
- organizing the purchase and sale of goods, especially school supplies, textbooks and sports and tourism equipment,

- providing financial assistance or providing materials and school supplies to members of cooperatives who are in difficult financial,
- run a cooperative school savings bank as a cooperative unit.

Similar types of activities have cooperatives in German schools. Examples of Pupils' cooperatives business ideas are making string puppets and performing with them, felting sheep wool, bee keeping, the making of apple juice, breeding of mushrooms, building steel barbecues, running computer courses for senior citizens, catering, event management and so forth. Business ideas thus are not much different to those of other school firms focused on Education for Sustainable Development. The attractiveness of the cooperative form seems to be linked to initiators believing that the cooperative way of organizing is particularly conducive to Education for Sustainable Development (Von Ravensburg, 2017).

The functioning of student cooperatives is varied. Important factors determining the development of cooperatives are organizational preparation, ingenuity and resourcefulness of teachers. Internal factors also include the type of educational institution and the age and number of members involved in the creation and development of activities. Cooperatives are places where young people can learn and acquire practical knowledge in economics, since the statutory purpose of the initiative is to conduct business (commercial, service, manufacturing). Analysis of the data collected as a result of the study indicates that the dominant activity of the student cooperative is commercial activity (Brzozowska-Wabik, 2015).

Cooperatives learn to investigate and respond to the needs of other students (clients) and tailor their activities accordingly to their needs, and to properly manage their resources and funds. As a result, it contributes to the absorption of market principles and the basis of marketing, while market orientation facilitates their subsequent start in the labor market. That is why student cooperative is much more than a school shop - it is a tool for shaping civic and democratic attitudes and a great school of entrepreneurship, resourcefulness and responsibility. The characteristics of student cooperatives are shown in Figure 1.

Works within the facility educational	It sets the minimum 10 students	Students - union associates. The members of SC are its members
SC carries on teacher – tutor	The organization operates on the statutes	The organization takes action specified in the statute
It works through its organs statutory -The General Meeting, Supervisory Board, Management Board	Within the statutory bodies only SC members are active	Teacher - the supervisor monitors and directs SC's activities

Figure 1. The characteristics of student cooperatives (SC).

source: on the basis of information Foundation for Development of Student Cooperative (Fundacja Rozwoju Spoldzielczosci..., 2017).

In the program of schools above the basic (above the junior high school) is carried out an object called the basis of entrepreneurship. Student cooperatives perfectly fill the practical side of this education. Membership in cooperative improve their mathematical and mathematical skills, first economic experience, first decision making and consequences, time and resources management, economics in practice, market orientation, and marketing fundamentals (Foundation for Development of Student Cooperative).

The cooperative shapes civic attitudes by indicating that the goal of the action is the good of the public. Cooperative is a group action, a sense of community, responsibility, a sense of trust in others, the development of social competences, including communication, the inculcation of pro-health and pro-ecological ideas, diligence and honesty in action, democratic values.

In Poland, cooperative pupils are most active in the Malopolskie and Slaskie Voivodeships, with over one hundred of them in each. In Podlaskie Voivodeship, school cooperatives play a negligible role in the schools' operations. The research of the author shows that this is the result of not observing the role of cooperatives in education and upbringing by the directors and educators in the studied schools. The question of what forms of action are taken at school in order to activate entrepreneurship and democracy, the respondents mentioned primarily school self-government (97 %), competitions (89 %), sports (84 %), social work for schools and the environment (70 %), meeting with people of success 56 %.

Student cooperatives were listed only once (1.64 %). Other forms of activism were also given: occupational counselling and social studies classes, educational hours, meetings with successful school graduates, educational projects, visits to workplaces (Figure 2).

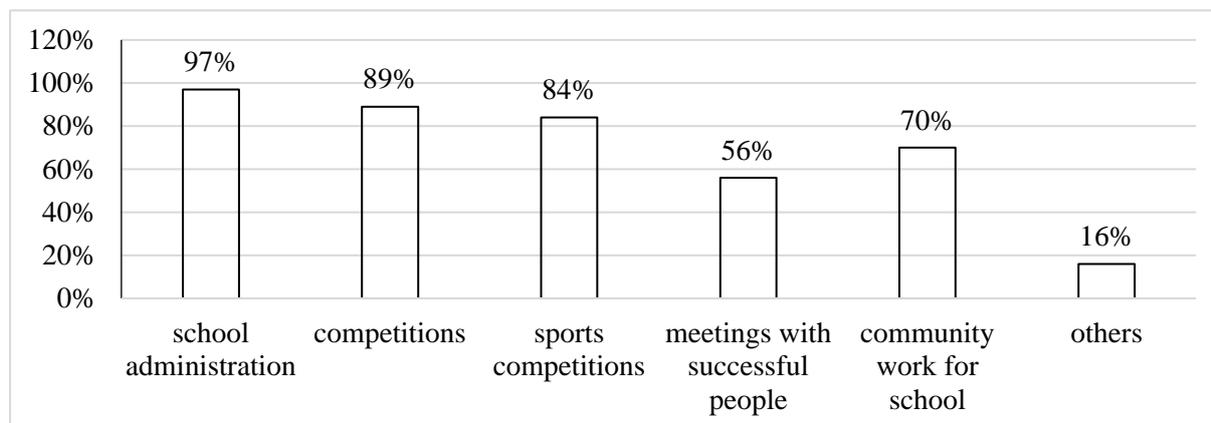


Figure 2. Activities of the school stimulating the enterprise.

Stimulating entrepreneurial and democratic activity requires teamwork. The schools when asked about the forms of teamwork answered: 92 % circles of interest, 87 % sports, 75 % volunteering. (Figure 3). Among the applied forms of teamwork were also mentioned: scouting, chorus, equalizing classes, community room.

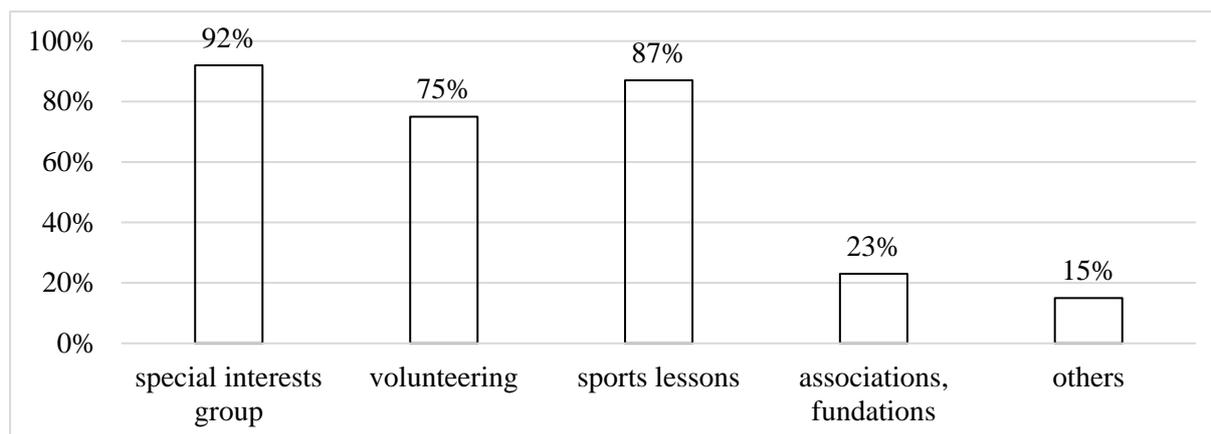


Figure 3. Forms of teamwork in schools.

It should be appreciated that 97 % of the schools surveyed advocated intensifying the educational work of the school. Only 3 % of respondents indicated that the role of the school was limited. In one-fourth of the studied schools there is a school shop, but only one school is run by a student cooperative. The shop is usually run by a private person not associated with school. School savings banks operate in 15 schools.

Authors writing about student cooperatives pay attention to several problems. It is about questioning the exclusive conceptualization of the pupils' firms as educational projects within school. Problem is their emphasis on providing business ideas and management skills. More reflexes are needed on the wider social and political implications around issues to do with pupils' autonomy and makes a case for preferred forms of self-determined and cooperative working (Liebel, 2009). Schools have to enter into binding relationships with a primary cooperative and the federation, both essentially outsiders to the school system. Being essentially bureaucratic organizations, many schools find it really demanding to accommodate cooperative school firm work. Among the challenges they face: timetables need to be altered to allow pupils of different classes to meet; pupils might have to be granted independent authority over resources like money or school rooms; parents have to be assured of the safety of their children even when outside of school or in periods without a teacher present; teachers must adjust to a coach-role not necessarily familiar so far, and more than half of them organize in content-centred teams, also a novelty for many; pupils need to embrace their new status as co-educators/co-producers of education (Von Ravensburg, 2017, 33).

## Conclusions

Historical experience of student cooperatives in Poland as a tool in education and education of young people is confirmed by research in the 21st century. Entrepreneurship, respect for the values of work and democracy are shaped by student activity. The results of the study show the varied regional role of student cooperatives in school activities. The following trends may be mentioned:

- cooperative activity stimulates entrepreneurship, promotes respect for work and democracy;
- the members of the cooperative learn the economics and democratic management and the welfare of the general public;
- student cooperatives are most active in the south of Poland - Malopolskie and Slaskie Voivodeships;
- cooperative traditions in these regions date back to the 19th century;
- the formation and development of student cooperatives determines the involvement of teachers of cooperative teachers who are close to cooperative ideas;
- student cooperatives in their activities are supported by "adult" cooperatives - Cooperative Societies and Labor Cooperatives and the National Cooperative Council;
- the activity of student cooperatives in the northern and eastern voivodships – in Podlaskie is very low;
- in the Podlaskie Voivodeship, the schools pay great importance to volunteering and school self-government;
- the lack of regulations in this area is a barrier in the activities of student cooperatives in Poland in the 21st century.

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**Life Quality in the Context of Home  
Environment, Home Economics,  
Design and Crafts**



## Cooking Methods, Social Relations and Situations Related to Food as a Part of Nutrition Education within Family

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**Abstract:** Nutrition education provided within family can be significantly affected by tradition, including the various elements of cultural heritage such as traditional food, methods of its preparation, and finally eating habits. The aim of the study is to investigate the contemporary family's commitment to cooking at home, the importance of food in social relations and during social events as one of the factors of family socialization. A questionnaire survey was carried out within the Polish sample in September 2012. Selected statements from the Food-Related Lifestyle Scale were included in the data analysis. On the base of factor analysis 7 factors were driven: Looking for new ways; Interest in cooking; Social events and relationships; Convenience; Partnership in cooking and shopping; Family involvement; and Woman's tasks. Participants were aware of the influence of food on the culture of everyday life, although the role of food was considered to be moderate. Furthermore, the socialization functions of the family are realized within the process of fulfilling the nutritional needs, especially in regard to children. The results of the study have confirmed the change in social roles in the family performed by men and women. Although there is an expectation of partnership both in purchasing food and preparing meals, a confidence about the responsibility of women to provide food for family still exists. The changes in the food culture are quite slow, both in relation to methods of food preparation and type of food consumed. Therefore, traditional patterns are preferred over innovations. It can be concluded that cultural heritage is heavily involved in nutrition education provided within the family. In order to avoid conflict, non-family education should also incorporate the elements of tradition.

**Keywords:** nutrition education, family, cooking methods, social relations, adult education.

### Introduction

The nutrition education provided within family can be significantly affected by tradition, including the various elements of cultural heritage such as traditional food, traditional methods of its preparation, and finally eating habits. For foods to be considered traditional they need to be frequently consumed in the community, passed from generation to generation and prepared according to old recipes, possibly with a minor contribution of modern processing methods. The impact of culture is the reason for the existence of separate ethnic cuisines, including national cuisine, regional cuisine, and even family cuisine.

The food culture is to a high extent determined by the natural resources of flora and fauna, climate and the presence of water reservoirs. The process of its formation is also influenced by religion and both historical and social changes. Other factors that have influence on the development of food culture are wars, business contacts or political relations with other nations. The latter factors can be classified as enriching for the local food culture.

Nowadays the impact of the cultural heritage on food sphere seems to be equally important as it was in the past. Food and dietary patterns are involved in socialization process within family. Despite high availability of food derived from different geographic areas, and presence of food that is a product of application of advanced technologies in its production, traditional foods and patterns of its consumption continue to be used in order to meet a variety of needs, including the psychological and social needs (Fieldhouse, 1995, 79).

Consuming meals in a group is an important element of culture and a socialization tool in many societies. Eating a meal together gives family members a sense of security and belonging to the family or a wider social group. Dining together promotes establishment and consolidation of contacts with other members of a social group. Furthermore, food products can be used to obtain or to confirm the social position of individuals or communities.

The use of food and practices associated with food in meeting the social needs is conducive to creating a sense of social identity and community, and it also positively influences communication. In relation to the traditional foods, identity is manifested in the feeling of belonging to a group, which explains why

the traditional food is eagerly consumed. For the development of an individual it is essential to have a sense of being connected with other members of the community. Hence the cultural heritage is of the utmost importance, it transmits the tradition from generation to generation. The sense of identity justifies the existence of an individual, provides security and creates a bond of sympathy (Zimbardo, Ruch, 1979, 542). Each social group strives to preserve its autonomy and to avoid being identified with another group, e.g. young people do not want to be identified with adults. For example, the young people demonstrate preference for foods served in fast-food restaurants, while adults prefer to eat their meals in restaurants with a higher standard (Finkelstein, 1989, 70).

Communication in the food sphere is realized through symbolic meanings attached to many food products or practices associated with food. From the cultural point of view, every food product is saturated with meaning (Fieldhouse, 1995, 78). Food has been used by humans in terms of the symbol of status and prestige for a long time. In each society the place where the meal is consumed and the people with whom the meal is consumed attest the prestige of a given individual. Some meals are eaten in the family circle, others offered solely to guests. Preparation and serving of food is dependent on age and gender, as well as the prestige of the guest.

In the past, people consumed solely the food that was available in their environment and that was the same type of food that was eaten by their ancestors. Despite significant changes in social life, the impact of cultural heritage on the dietary pattern is also important nowadays. Although people have access to food from other countries and to highly processed food, the traditional food and its consumption patterns still determine a substantial number of our food choices and meet a variety of human needs. Cultural diversity, materialized among others in the existence of different religion norms and food habits, emphasizes the individuality of each society. The distinctiveness of society is also determined by regional and national cuisines, which are culturally defined by regulations regarding the manner of preparing food, organizing the meal and ones determining the scope of edible food.

The lifestyles of people coming from the same culture are not necessarily the same. A lifestyle can either relate to integration in a certain larger social group or be a tool for self-expression for an individual. It can be defined as the relationship between individual's personality and the surroundings (Szakaly et al., 2012, 407). One of the models of lifestyle including food consumption behaviours is K.G. Grunert's food-related lifestyle (Bruns, Grunert, 1995, 476). According to this model the attributes of lifestyle are situated between the values and the product categories. The Food-Related Lifestyle (FRL) concept has been used to measure people's attitudes towards food. FRL attempts to distinguish people due to the role that food plays in their lives, linking generic food-related attitudes to the achievement of desired consequences. Lifestyle, as defined in the FRL concept, mediates between consumers' personal values and situation-specific product perceptions and behaviours (Grunert, 2006, 150). This model includes such elements as types of food shopping behaviours, meal preparation methods, purchasing methods and consumption situations. These attributes of food-related lifestyle describe the food culture. That is why some factors of this lifestyle model were used as theoretical background of this study.

The aim of the study is to investigate the contemporary family commitment to cooking at home, the importance of food in social relations and during social events as a part of family socialization.

## **Methodology**

The survey for this study was carried out in September 2012. The sample consisted of 1000 participants (47.8 % women and 52.2 % men), of age ranging between 18 and 75 years. The characteristics of study sample are presented in Table 1.

The data regarding some aspects of food sphere and socioeconomic status were collected using the close-questionnaire involving Food Related Lifestyle scale. The study participants were asked to indicate to what extent they agreed with each statement by choosing one from 7 answers – from 'strongly disagree' (1 point) to 'strongly agree' (7 points). Only selected statements from the Food-Related Lifestyle Scale were analysed in order to prepare this paper. There were statements listed in three groups of FRL Scale "Cooking methods" (items described as "Interest in cooking", "Looking for new ways", "Convenience", "Whole family involvement", "Planning", and "Woman's tasks"); "Consumption situation" (item described as "Social event"); "Purchasing motives" (item described as "Social relationships"). Apart from the selected measures of the Food-Related Lifestyle Scale referring to

cooking methods, social relations and social events, questions on socio-demographic characteristics (gender, age, education, and place of residence) were included in the questionnaire.

Table 1

**Characteristics of study sample (%)**

Sociodemographic characteristics		Total	
		N*	[%]
Total population		1000	100.0
Gender	Female	478	47.8
	Male	522	52.2
Place of residence	Rural area	396	37.8
	Town with less than 20 000 citizens	243	8.8
	Town with 20 000 – 99 000 citizens	189	24.7
	Town with more than 100 000 citizens	172	28.7
Education	Primary	235	23.5
	Vocational	272	27.2
	Secondary	349	34.9
	Academic	144	14.4
Age	25 years old and less	166	16.6
	26-35 years old	203	20.3
	36-45 years old	162	16.2
	46-55 years old	164	16.4
	56-65 years old	155	15.5
	More than 65 years old	150	15.0

\*number of respondents

FRL scores were presented as response rates, means and standard deviations. Comparisons of means within groups based on sociodemographic characteristics have been performed with ANOVA test. The factor analysis was used to separate the main factors on the base of selected FRL statements describing various aspects of cooking methods, social relations and social events. Seven main factors were separated. They explained 58,4 % of the variance. The Cronbach's alpha test was carried out to assess the internal reliability of the factors. The Cronbach's alpha was in the range of 0.547 – 0.736.

## Results and Discussion

The respondents' opinions regarding statements used in the study are shown in the Table 2.

The mean values have indicated that most of statements obtained a neutral opinion of the respondents. Higher means were found regarding the involvement of family members in the work related to the preparation of meals, the need to plan the activities comprised in cooking, the conviction that the responsibility for shopping and cooking should be shared between the husband and the wife, and the fact that consuming a meal together may be a beginning of a conversation. The distribution of extreme opinions expressing approval or disapproval of statements indicated that the study participants were quite diversified.

About 2/5 of the respondents agreed with the fact that a meal consumed together could be a beginning of a conversation and that the responsibility for shopping and preparing meals falls upon both women and men. Relatively few people have confirmed that eating out is a regular part of their dietary habits and that they often get together with friends and enjoy an easy-to-cook dinner, which is confirmed by the research R.Zabrocki and E. Babicz-Zielinska (2003, 267). In the study sample, only about 16 % of people confirmed the use of frozen foods and the use of many mixed ingredients when preparing meals. In contrast, almost 30 % of respondents reported using a lot of ready-to-eat products (Table 2).

A lack of coherence can be noted based on the value of the coefficient  $\alpha$  Cronbach describing the matching quality within the subscales (Table 2). It has shown that not all subscales of FRL Scale accurately represented the family food sphere in the study sample. Thus, all statements that form eight scales presented in Table 2 were used in the factor analysis.

Table 2

**Food Related Lifestyle dimensions included in the study**

FRL subscales and statements	Mean; SD	Opinions*		$\alpha$ Cron- bach
		1 i 2	6 i 7	
<b>1. Interest in cooking (I)</b>				
(I.1) I like to pass fairly adequate amount of time in the kitchen	4.5; 1.6	3.7	29.7	0.195
(I.2) Cooking is an enjoyable task	3.8; 1.8	26.4	19.6	
(I.3) I like to spend a lot of time cooking	4.0; 1.8	23.5	23.5	
<b>2. Looking for new ways (L)</b>				
(L.1) I try to use new recipes	4.3; 1.7	16.6	27.9	0.736
(L.2) I look for various ways to prepare uncommon meals	4.0; 1.8	22.3	23.4	
(L.3) Recipes and articles about food from other national cuisines incite me to experiment in the kitchen	4.2; 1.7	17.8	23.6	
<b>3. Convenience (C)</b>				
(C.1) Frozen foods take up a big part of nutritional products in my family's diet	3.7; 1.6	24.8	16.0	0.653
(C.2) Our family uses a lot of ready-to-eat foods	4.2; 1.8	18.7	28.8	
(C.3) I use many mixed ingredients, e.g. baking ingredients and powdered soups.	3.7; 1.7	26.8	15.7	
<b>4. Family involvement (F)</b>				
(F.1) Kids or other members in the family always help in the kitchen: for instance, they peel the potatoes	4.4; 1.7	17.3	32.4	0.493
(F.2) My family helps in tasks in related to preparing meals, e.g. setting the table and doing the dishes	4.8; 1.6	9.9	36.8	
(F.3) If I really do not want to cook, I may let someone else in the family do it	4.6; 1.6	13.4	30.6	
<b>5. Planning (P)</b>				
(P.1) Whether we go out is often a last-minute decision	4.2; 1.7	18.8	25.8	0.174
(P.2) A plan must be made ahead of cooking	4.8; 1.5	8.9	33.8	
(P.3) I always plan what to eat a few days ahead	3.8; 1.8	28.5	21.0	
<b>6. Woman's tasks (W)</b>				
(W.1) I think the kitchen is a place for a woman	4.2; 1.7	18.3	26.2	0.303
(W.2) It is a woman's responsibility to provide nutritious food and drinks to keep the whole family healthy	4.4; 1.7	16.5	29.5	
(W.3) Nowadays, the responsibility for shopping and cooking should be shared between husbands and wives	5.0; 1.5	7.3	41.1	
<b>7. Social events (SE)</b>				
(SE.1) Eating out is a regular part of our diet habits	3.4; 1.7	25.1	13.2	0.552
(SE.2) We often get together with friends and enjoy dinner that is simple and easy to cook	3.8; 1.7	24.0	17.1	
(SE.3) I like to go to restaurants with my family and friends	4.3; 1.7	15.5	30.0	
<b>8. Social relationships (SR)</b>				
(SR.1) I find it an important part of social life to dine with friends in a restaurant	4.2; 1.7	19.2	26.0	0.458
(SR.2) When I cook for friends, I find us being together as something of an utmost importance	4.3; 1.6	14.0	24.5	
(SR.3) People may have a good chat after dinner	5.0; 1.5	7.2	38.6	

\* opinions from 7-point scale: 1 - strongly disagree; 2 - disagree; 6 - agree; 7 - strongly agree.

SD – standard deviation

As a result of this analysis seven factors were identified after a Varimax rotation (Table 3). As the Kaiser-Meyer-Olkin (KMO) measure was 0.833, the variable set was recognized as suitable. The significance of the Bartlett test was lower than 0.001. The total variance explained by the factors was 58.4 %.

Table 3

## Factors derived from FRL subscales

Factor	Nomination of factor	Total variance		Mean; SD	$\alpha$ Cron- bach
		% of variance	Cumulative %		
1	Looking for new ways (L.1; L.2; L.3)*	19.121	19.121	4.18; 1.39	0.736
2	Interest in cooking (I.2; I.3)*	12.925	32.046	4.22; 1.22	0.650
3	Social events and relationships (SE.1; SE.2; SR.1)*	6.210	38.256	3.82; 1.26	0.587
4	Convenience (C.1; C.2)*	6.077	44.333	3.98; 1.43	0.590
5	Partnership in cooking and shopping (W.3)*	4.981	49.314	5.0; 1.15	-
6	Family involvement (F.1; F.2)*	4.689	54.003	4.63; 1.45	0.640
7	Woman's tasks (W.1; W.2)*	4.391	58.394	4.32; 1.43	0.547

\*symbols incorporated in Table 2

SD – standard deviation

According to the results of factor analysis, *looking for new ways* was the main stimulus for consumers' behaviours in the food sphere. This factor has expressed the attitude orientated towards change in the food sphere, which on one hand can mean abandoning the traditional practices, and on the other hand, reintroducing what was characteristic for the past. The *Interest in cooking* as the next factor has explained about 12 % of variance. Factor 3 named as the *Social events and relationships* includes statements concerning eating out as a habit, getting together with friends and enjoying dinner, and dining with friends in restaurant as important part of social life. Factor 4 *Convenience* refers to the amount of frozen foods and ready-to-eat foods consumed by the family. Factor 5 was prioritized by those who value *Partnership in cooking and shopping*. Those who emphasized the importance of factor 6, valued *Family involvement* in preparing meals. Factor 7 *Woman's tasks* was prioritized by those who emphasized women's responsibility for food and kitchen.

The interest in looking for new ways in preparation of food was moderate, as evidenced by the mean value which corresponds to the rating "neither agree nor disagree" (Table 4).

Table 4

Respondents' opinions on factors according to gender (ANOVA,  $p < 0.05$ )

Factor	Total	Gender		$p^{**}$
		Female	Male	
Looking for new ways	4.18; 1.39*	4.43; 1.33	3.97; 1.41	<0.001
Interest in cooking	4.22; 1.22	4.43; 1.17	4.02; 1.22	<0.001
Family involvement	4.63; 1.45	4.75; 1.44	4.52; 1.45	0.013

\* Mean based on a 7-point scale (1 - strongly disagree; 7 - strongly agree); standard deviation

\*\* level of significance

More than one fourth of study sample (27.9 %) reported that they liked to use the new recipes when preparing meals. Slightly less than one fourth of respondents reported searching for recipes for uncommon meals, and the same number of respondents reported the use of recipes for traditional dishes (Table 2). The search for recipes for previously unknown foods may therefore concern searching for traditional food just as well as for recipes deriving from other cultures. Women were characterized by a significantly higher interest in the new methods of food preparation in comparison to men (Table 4).

A greater interest in looking for new ways involving the use of new recipes was characteristic for respondents living in the cities and small towns. Relatively lowest interest in looking for new ways was found among the rural population, which may indicate a greater importance attributed to the traditional ways of preparing food (Table 5).

Table 5

**Respondents' opinions on factors according to place of residence (ANOVA, p<0.05)**

Factor	Total	Place of residence				P**
		Rural	Town <20 000	Town 20-100000	City >100 000	
Looking for new ways	4.18;1.39	4.06;1.37	4.35; 1.43	4.12;1.44	4.34; 1.30	0.026
Social events and relationships	3.82; 1.26	3.79; 1.25	4.04; 1.30	3.77;1.34	3.59; 1.10	0.004
Partnership in cooking and shopping	5.0;1.15	4.90; 1.51	4.94; 1.71	4.94;1.59	5.38; 1.23	0.005
Family involvement	4.63;1.45	4.61; 1.45	4.68; 1.52	4.40;1.51	4.84; 1.25	0.032

\* Mean based on a 7-point scale (1 - strongly disagree; 7 - strongly agree); standard deviation

\*\* level of significance

Lack of interest in cooking was declared by about one fourth of the respondents, although there were more indications related to perceiving cooking as a pleasant activity (Table 2). Similarly, to the factor 'Looking for new ways', the survey results pointed to low interest in cooking, as indicated by the mean slightly higher than 4 which correspond to "neither agree nor disagree." Additionally, women were significantly more interested in cooking than men (Table 4).

The increase of importance of food that allows for shortening the time needed for preparation of meals, so called convenient food is observed in Poland. Using such food is the reason for limitation of traditional food consumed in Polish families, which requires more time for its preparation. In this study about 25 % of participants did not agree that frozen foods take up a big part of food products in their family's diet, while 16 % of respondents said that frozen foods take up a big proportion in their families' meals. Furthermore, about 29 % of respondents reported the use of a lot of ready-to-eat foods (Table. 2). The use of frozen food and ready to eat food was differed accordingly to the respondents' age. A greater use of such foods was found in the group of the oldest respondents and the youngest ones (Table 6).

Table 6

**Respondents' opinions on factors according to age (ANOVA, p<0.05)**

Factor	Total	Age (years)						P**
		18-24	25-34	35-44	45-54	55-64	65 +	
Convenience	3.98; 1.43*	4.23; 1.20	3.79; 1.37	3.84; 1.31	3.97; 1.54	3.93; 1.49	4.20; 1.63	0.015
Partnership in cooking and shopping	5.0; 1.15	4.93; 1.60	5.0; 1.51	5.23; 1.52	5.10; 1.49	4.63; 1.61	5.11; 1.48	0.012

\* Mean based on a 7-point scale (1 - strongly disagree; 7 - strongly agree); standard deviation

\*\* level of significance

*Social events and relationships*, as factor 3, has included three statements: having meals in restaurants as a regular habit, meeting friends for preparing and consuming meals together and the belief that eating in restaurants constitutes an important part of social life. The mean value for this factor is lower than 4, indicating a slight disagreement with these statements. Mean value was the highest in urban areas with up to 20 thousand residents, and the lowest among people living in the cities (Table 5). This result is difficult to explain due to the larger involvement of catering services in meeting the nutritional needs of people representing the metropolitan environment. In the literature, it has been stated that there is a statistically significant relationship between the level of education and the use of catering services (Zabrocki, Babicz-Zielinska, 2003, 268), which was not confirmed in this study.

The involvement of family members in the preparation of food is described by two factors, namely the *Partnership in cooking and shopping* and *Woman's tasks*. The total of two factors explains the 9.4 % of the variance. According to the opinions of the respondents the responsibility for shopping and cooking should be shared between husbands and wives (mean value 5.0). Simultaneously, it was indicated that the confidence about the responsibility of women to provide food for family (mean value 4.32) (Table 3). The age of people who were convinced about the importance of partnership in cooking and shopping ranged between 35 and 44 years. Respondents aged 55-64 years old were the least convinced about it (Table 6).

In addition, partnership in cooking and shopping was more important to people living in cities of over 100 thousand citizens than to other groups (Table 5), and to people with higher education (Table 7).

Table 7

**Respondents' opinions on factors according to education (ANOVA,  $p < 0.05$ )**

Factor	Total	Education				p**
		primary	vocational	secondary	higher	
Partnership in cooking and shopping	5.0; 1.15*	4.47; 1.36	4.25; 1.52	4.16; 1.41	4.60; 1.38	0.004

\* Mean based on a 7-point scale (1 - strongly disagree; 7 - strongly agree); standard deviation

\*\* level of significance

A relatively low use of the meals offered by gastronomy services has indicated a large commitment of time to preparation of meals at home. In the past, most of the work related to the preparation of meals was done by women. With the increase of women's work activity changes in the organization of nutrition at home could be observed. At the same time the number of dining establishments available at workplace and education facilities increased. Hence the question is how these changes affect the organization of work related to the preparation of meals at home and how many household members, other than the wife, are involved in preparing meals.

The results of the survey indicate that in about one thirds of families the kids or other members of the family always help in the kitchen. Less than one fifth of participants did not agree with this statement. Even more than one thirds of the population agreed with the statement "My family will help in doing things in relation to meals, e.g. setting the table and making dishes". The involvement of household members in the work related to the preparation of meals in these families creates conditions for the process of socialization. Nutritional knowledge, values that shape the personality of individual, attitudes, moral and social beliefs and behavior patterns can be transmitted during the collaborative work when preparing food in the family (Storey et al., 2003, 492; Lytle et al., 2003, 172). Among the components of culture transmitted during the process of socialization there are also dietary habits. The children can learn by imitating behavior of the others but also under the influence of a system of rewards and penalties (Wardle et al., 2003, 346). The experiences connected food and nutrition acquired in the family home determines the behavior of adults to a great extent (Cusatis et al., 2000, 202).

## Conclusions

Based on the results of the study carried out with the use of food-related lifestyle questionnaire it can be concluded that participants were aware of the influence of food on creating a culture of everyday life, although the role of food was considered to be moderate. It was also indicated that integration of the family can be done by the involvement of the family members in the tasks related to the preparation of food. Furthermore, the socialization functions of the family are implemented within the process of fulfilling the nutritional needs of the family members, especially in regard to children. Time spent not only in the family circle, but also with people from outside the family circle and social relations accompanying eating meals is important for human and for cultural transmission.

The results of the study have confirmed the change in social roles in the family performed by men and women. First of all, it should be noted that there is an expectation of partnership in the implementation of nutritional functions, both in purchasing and preparing meals, especially in the age group 35-44 years, among the urban population of cities with over 100 thousand residents and among people with higher education. At the same time woman is still seen as the person taking care of the food sphere.

Changes in the food culture can be described as quite slow, both in relation to methods of food preparation and type of food consumed. Engagement in cooking is still viewed as a pleasant activity. However, traditional patterns are preferred over innovations, as evidenced by the relatively low interest in the search for new recipes from the cuisines other than national or traditional Polish cuisine. Women are more active in this area compared with men; furthermore, rural environment appears to be more traditional than the urban area. Food ready for consumption is more popular as an ingredient in meals consumed at home than frozen food and food in the form of concentrates, although the scale of the phenomenon is not large.

Eating in a group wider than the family, especially eating out, is an important part of social life according to the opinion of the respondents. The traditional formula for social gatherings or inviting friends and relatives in order to have a meal together at home is still used, as evidenced by the opinions on the low importance of restaurants for social life.

It can be concluded that cultural heritage is heavily involved in nutrition education provided within the family. In order to avoid conflict, non-family education should also incorporate the elements of tradition.

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## Creating Together! The Creation of Learning Tools for Students with Severe and Profound Intellectual and/or Multiple Disabilities

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**Abstract:** The study aimed to solve the problem of learning tools for pupils with severe or profound intellectual and/or multiple disabilities (SPIMD). The aim of the study was to evaluate existing learning tools and to create, in cooperation with designers, prototypes for learning tools. The study has been structured as design research. The principle of user-centered design is applied. The existing learning tools and new tools were assessed by specialists working with pupils with SPIMD on a daily basis. The data collection involved observation, a focus group study, a questionnaire. The responses were analysed by performing qualitative content analysis. It appeared that the existing learning tools cannot provide clear and strong stimuli for the pupil. Toys designed for babies and infants are being used as learning tools. The tools are often of poor quality and unreliable, and they cannot be adapted to the special needs of the pupil. Based on the results of the study, it can be concluded that a learning tool which has an unsuitable design (visual, tactile as well as auditive) does not support the understanding of things being taught. In creating new learning tools, it should be taken into account that the product has to be of high quality and reliable; it has to consider the special characteristics of the cognitive processes and the underdeveloped motor skills of the pupils with SPIMD; it has to be universal, allowing adjustments according to individual special needs; it has to be easy to clean.

**Keywords:** multiple disabilities, user-centered design, learning tools, special education, school education.

### Introduction

Many children with special needs can learn to master skills when they live in environments that strongly support their learning and development (Fischer, 2009). Each person is unique and if we follow their lead, we will be able to design a curriculum and teaching approaches that will be right for each one of them (Colley, 2013). It is impossible to give such advice for the creation of learning tools that would apply to all persons and situations. Only general principles to consider can be pointed out. The learning tools have to be adjusted to take into consideration individual needs and different situations. The study aimed to solve the problem of learning tools for pupils with severe or profound intellectual and/or multiple disabilities (SPIMD).

The term SPIMD is used differently in different countries, and it can also have varied meanings. In Estonia, there is a special term *care education* (“*hooldusõpe*”) referring to teaching pupils with severe and profound disability. In English, several terms are employed. However, recently the terminology has been unified and the main terms used are profound intellectual and multiple disabilities (PIMD) and profound and multiple learning disabilities (PMLD). In this article the author uses the terms: pupils with SPIMD, PIMD and PMLD, which all correspond to the Estonian term. It is very difficult to characterize a person with PIMD because there are two key defining characteristics: profound intellectual disability and profound motor disability, that mean a “multiple disability” is attributed to every individual with more than one discernible disability in executing functions (Nakken, Vlaskamp, 2007). Personal characteristics for the purpose of this study are defined as diagnoses, disabilities, impairments, activity restrictions and other characteristics which represent a person with PIMD. G. Bellamy carried out a study to define PMLD, according to the study, people with PMLD can be defined as follows (Bellamy et al., 2010):

- have extremely delayed intellectual and social functioning;
- may have limited ability to engage verbally, but respond to cues within their environment (e.g. familiar voice, touch, gestures);
- often require those who are familiar with them to interpret their communication intent;
- frequently have an associated medical condition which may include neurological problems, and physical or sensory impairments;

- they have the chance to engage and to achieve their optimum potential in a highly structured environment with constant support and an individualized relationship with a career.

By the WHO ICD-10 Classification of Mental and Behavioural Disorders (World Health Organization, 2014) people with profound mental retardation IQ under 20 (in adults, mental age below 3 years) are severe limitation in self-care, continence, communication and mobility. Research has shown that all people with profound disability should be considered partially sighted until it has been proven otherwise. Likewise, up to 30 % of them may experience hearing impairment and more than 20% may suffer from combined sensory impairment (Van Splunder et al., 2006; Broek et al., 2006; Evenhuis et al., 2001).

People with PIMD form a small, but significant section of the wider population of people with intellectual disabilities (Carnaby, 2007). In Estonia SPIMD children (age 3-7) study in special nursery schools. At age 7-21 they can study in special schools, in special classes, and home-schooling is also available. In 2011-2017 the number of pupils with SPIMD, which were attending basic schools and/or home-schooling in Estonia, has been between 229 to 278. (Estonian Education Information System..., 2018). The curriculum for their studies was approved in 2010 as an appendix to the simplified curriculum of the basic school (Pohikooli lihtsustatud riiklik..., 2010). Pupils with PIMD have been taught in Estonia for over ten years. The working draft of the curriculum as compiled by the Centre for Curriculum Development at Tartu University was used before 2010 as the basis. Before the past ten years only the social system dealt with children with PIMD.

According to the simplified curriculum of the Estonian basic school, the aim of teaching children with SPIMD is to preserve and develop the existing functions and skills that possesses and to ensure the child's development in the direction of greater independence, according to the child's potential, and in a familiar environment. The aim of the development is to support the formation of members of the society/citizens who, according to their level of development, learn to perceive their body, are able to notice and communicate their basic needs and wishes, and within the limits of their abilities are able to satisfy these needs either independently or with support (Pohikooli lihtsustatud riiklik..., 2010).

It is impossible to give such advice for the creation of learning tools that would apply to all persons and situations. Only general principles to consider can be pointed out. The learning tools have to be adjusted to take into consideration individual needs and different situations. Creation of learning tools has to be treated as a user-centred design process. User-centred design is primary applied in the development of IT-related products, but the creation of learning tools for children with special needs should also be treated as a process of user-centred design. It follows the principle that designers should create products that suit the users of these products, and not the other way around. User-centered design is based on the principle that 'the user knows the best'. It means primarily that the users are aware of their needs, preferences and aims, and the task of the designer is to design according to these (Safer, 2007, 31). When working with children with SPIMD, the primary assessor of the users' needs is the teacher or the therapist who is working with the children.

The International Organization of Standardization (ISO) (Human centred design..., 2010) identifies main activities of user-centred design, that are: plan the design process; understand and specify the context of use; specify the user requirements; produce design solutions to meet user requirements; evaluate the designs against requirements, designed solution meets user requirements (Rebelo, Soares, 2012, 106). The same principles should be followed in creating learning tools for SPIMD. First, we should examine the term learning tool that is used in this paper. In previous works, the terms educational or pedagogic toy (Brodin, 1999), special toy (Murphy, Carr, Callias, 1986) and play materials (Doctoroff, 2001) have been used, as learning takes place through playful activities. As nowadays, SPIMD students are included in the educational system, the author finds the use of the term learning tools more appropriate, as these are indeed tools used in the learning process. The article an overview of a study, that was triggered by the real-life problem that the needs of the pupils with SPIMD have not been considered are not in creating learning tools for them.

**The aim of the study is** to evaluate existing learning tools and to create, in cooperation with designers, prototypes for new learning tools. Since in working with children with SPIMD the primary evaluator of the user needs is the teacher or the therapist, in the current study focuses on investigating the assessments of specialists. In the study, the user-centred approach is used, which by its nature is a design study characterised by cycles. The current study can be viewed as the first cycle in the user-centred approach (Figure 1).

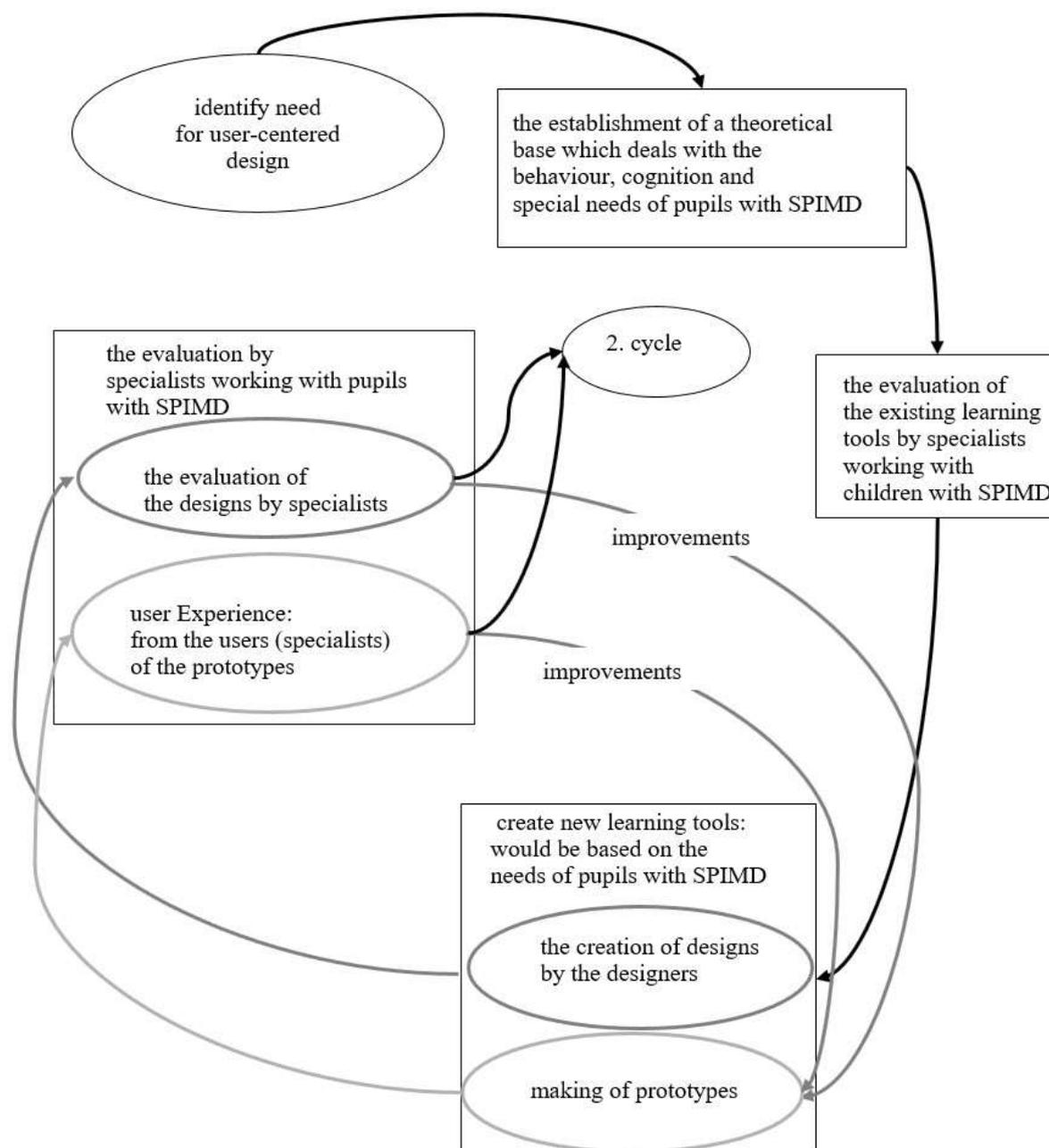


Figure 1. The first cycle in the user-centered approach  
(figure by author J. Kadastik on the basis of (Human centred design..., 2010)).

Following the aims of the research, the design process consisted of six stages: The establishment of a theoretical base which deals with the behaviour, cognition and special needs of pupils with SPIMD; The evaluation of the existing learning tools by specialists working with children with SPIMD. Study visits to schools providing education for children with SPIMD were organized for the designers of learning tools; the creation of designs by the designers; the evaluation of the designs by specialists working with pupils with SPIMD; the making of prototypes and using them in the rehabilitation unit of Tallinn Children's Hospital (TCH); feedback from the users of the prototypes.

## Methodology

The study has been structured as design research. The principle of user-centred design is applied. The research was set up as consisting of the following tasks: the evaluation of existing learning tools (Study 1); developing designs for learning tools for pupils with SPIMD (Study 2); carrying out a study in which specialists working with pupils with SPIMD assess the designs (Study 3), use then the prototypes based on the designs and give feedback on these prototypes (Study 4). The sample consisted of specialists who work

with children with SPIMD on a daily basis. The specialists work in schools providing education for pupils with SPIMD, and in TCH. The study involved eight 3rd year students of textile design at the Estonian Academy of Arts (EAA) who participated in the course: "Interactive learning tools". During the course the students developed designs for learning tools for children with SPIMD.

### **Study 1: the evaluation of existing learning tools**

A focus group study and a questionnaire were carried out among the specialists dealing with pupils with SPIMD, the aim of which was to assess the existing learning tools. Specialists of five schools and TCH responded. At Tallinn boarding school No. 1, which has the largest number of pupils with SPIMD, the study was carried out as a focus group interview. The specialists of other schools and TCH responded to a questionnaire. The questionnaires were sent electronically. Such an approach made it possible to ask identical questions in the focus group and in the questionnaire. The questions focused on the existing learning tools which support the development of children's visual, auditive and tactile skills. The eight students of textile design at the EAA who participated in the study made two study visits to learn about the current learning tools of the Tallinn boarding school No.1 and observed the classes. In the responses of all specialists participating in the study the similarity of currently used learning tools became apparent. We can distinguish three groups of tools that are used in the development of cognitive skills: musical instruments, toys and self-made learning tools. Musical instruments are the most popular sound-making learning tools. Toys are widely used to develop visual and auditive skills. Toys help to teach the cause and effect relationship. The problem with the toys are that they are not age-appropriate (meant for babies and infants), and their quality is poor. In the focus group unsuitable colours and design were mentioned. The toys are 'too colourful' and of unsuitable colour (a blue bear, pink elephant). In the photos and pictures the figures do not stand out from the background. Regarding auditive toys, bad sound quality and the lacking possibility to regulate the volume were emphasised. Products for infants have often very small buttons and switches which make them hard or impossible to use for children with SPIMD (inadequate/deficient fine motor skills and a considerably larger hand size compared to infants). Pupils experience difficulties in grasping and holding such tools. Many pupils with SPIMD have uncontrollable salivation, or the pupils try to 'stick things in their mouth and bite them'. Bearing this in mind, the learning tools should be of very good quality and easy to clean.

The third-year students of textile design at the EAA emphasised, similarly to the specialists, the poor quality of the currently used toys: „actually it's not just the problem of the school, rather a general thing about toys- screaming, whining things with unclear functions". Students highlighted the teachers' resourcefulness in using very simple self-made things as learning tools: "bottles of hot and cold water, tactile tools", „a stand with the caps of juice cartons which the child had to screw on and off". The students thought that "the existing learning tools could be improved by materials and some new solutions and made easier to handle". Based on the results of the study, in the creation of new learning tools the following aspects should be taken into consideration: 1) the special characteristics of the cognitive processes of the pupils with SPIMD (for example, in distinguishing different sensory stimuli; 2) the buttons, switches and fastenings used have to be usable given the deficient fine motor skills; 3) the learning tool has to be of high quality and reliable; 4) the learning tool has to be universal, allowing for adaptations according to individual special needs; 5) the learning tool has to be easy to clean.

Based on the results of the study, it may be concluded that a learning tool whose design (visual, tactile as well as auditive) is unsuitable does not support the understanding of what is being taught „a nice wooden stand where a child can put domestic animals back to their places (and learn from that). Some other object suddenly pop-out among the animals, and now you cannot teach the child to generalize about domestic animals". The study confirms the need to take into consideration the special characteristics of the development of cognitive processes of pupils with SPIMD, and the need to follow the principles of user-centred and universal design in creating learning tools.

### **Study 2: designs for new learning tools**

The designs were created by the third-year students of textile design at the EAA who participated in the course „Interactive learning tools". Eight students participated. The course had two supervisors (Kart Ojavee and Jana Kadastik) whose task was to give lectures, organize study visits and meetings with the specialists, and to provide through these activities the students with the knowledge about pupils with

SPIMD. They also supervised the creation of learning tools. The creation of learning tools was based on the following objectives: 1) to create new learning tools or improve the existing ones for the development of the cognitive skills of pupils with SPIMD; 2) to use innovative textile materials and textile-based solutions; 3) considering the study of the existing learning tools, to avoid the shortcomings that the currently used tools have; 4) to take into consideration the fact that the development of cognitive skills is closely connected with the development of motor skills, social and communicative skills, as well as skills for managing the everyday life; 5) it must be possible to combine the new tools with one another; 6) the products must be easy to clean; 7) there is no specific theme given. The students will find the idea based on their theoretical knowledge, the study of existing learning tools and their experience at the study visits.

Following the initial task, the students created eight designs for learning tools.

Touch-sensitive cloud/screen (author of design Stella Kalkun). The design was based on studies (Sahraie et al., 2006) which show that training with visual objects may lead to a better perception and awareness of these objects.

Tactile domino (author of design Kristel Laurits). The creation of the domino was based on the idea that when the contrasts between different surfaces regarding visual and tactile information coincide, the information from the two channels can be combined. In that case the tactile information supports the use of visual information and does not interfere with it (Hyvarinen, 1988, 35).

Therapeutic pillows The Rabbit/The Cat/The Octopus/The boy (authors of design Inna Beinar, Tatjana Kuusik). These are pillows of size 80 x70 cm, with a simple shape and different fillings, from soft batting and granules to different grains which make the pillows different in terms of weight.

Pillows supporting development (author of design Liisa Aid). Similar pillows were in use also before, but they lacked the opening where the teacher can hide an object as stimuli that would motivate the pupil to look for it (by opening the zippers, buttons and other elements).

An arch/arch (author of design Imbi Ilves). In creating this learning tool, it was taken into account that children who have several severe sensory disabilities perceive the world within the reach of their arms (Estonian Ministry of Social..., 1995). Therefore, it is important that the concept of space and the perception of specific features of objects would start at this distance. The designer made a 'roof' from a light material under which a child can experience a private and safe environment.

Modules (author of design Luise Wonneberger, Germany). A precondition for learning is such a body posture that would better enable the use of the existing motor skills. The modules are covered with a cotton fabric on which contrasting patterns have been printed. The modules can be connected with one other with the help of magnets.

A cloud that amplifies sounds (author of design Kristel Laurits). It was taken into consideration that the focus of attention on identifying an object from among other objects can be more successful when the *pop-out* effect is used (amplifying the sound made).

A safe circle (author of design Anna Magidenko, Russia). The learning tool enables a safe and comfortable environment for learning and relaxing.

### **Study 3: the assessment of designs for learning tools by the specialists working with pupils with SPIMD**

The evaluation of the learning tools was based on the drawings about them and the accompanying text. The specialists were first contacted by phone or in person. After that the drawings and the questionnaire had been sent them by e-mail. The designs were assessed by class teachers working with pupils with SPIMD (n=6), a head teacher, speech therapists (n=2), physiotherapists (n=4) and psychologists (n=2). The Likert scale was used in the questionnaire to assess the learning tools. The assessment was carried out in three categories: the novelty of the learning tool, the suitability of the tool for the needs of the pupil with SPIMD, and the readiness to use the tool in one's everyday work. In the second part of the questionnaire open questions were used. The specialists were asked to describe the positive and negative aspects of the learning tool, to point out the flaws, as well as other issues to consider in the future. Frequency tables and mean (Figure 2) were compiled in Excel, based on the assessments on the Likert scale. The answers of the open questions were analysed by using qualitative content analysis.

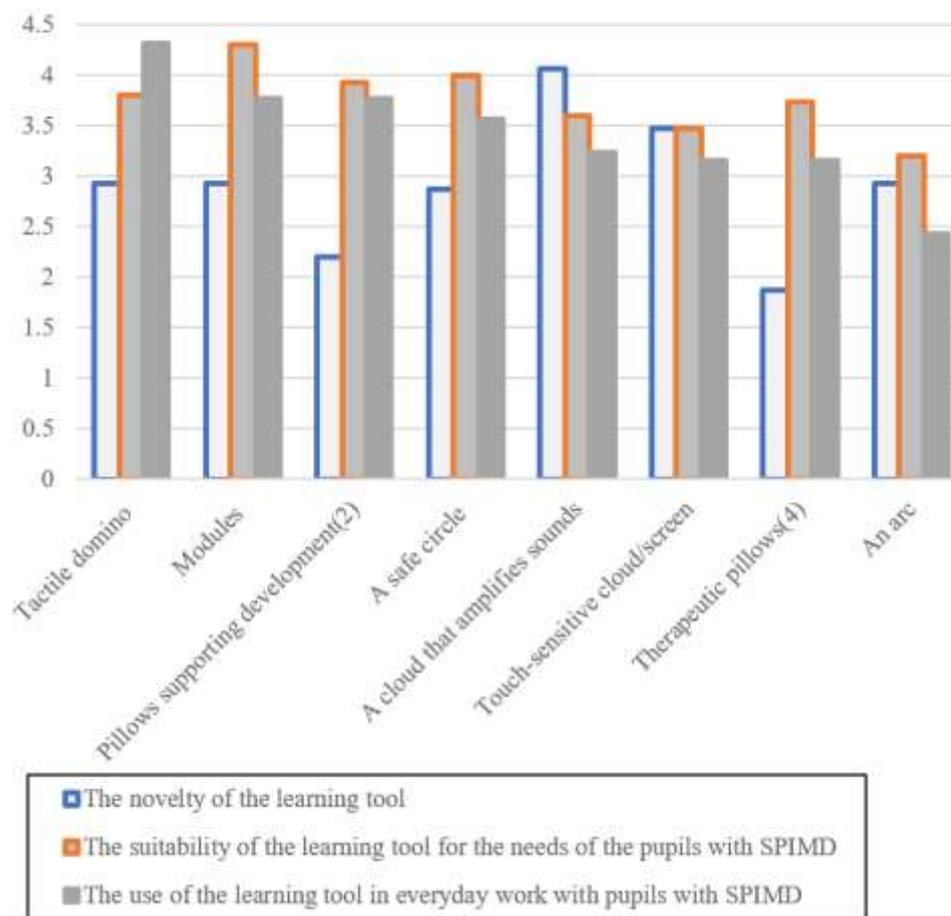


Figure 2. The assessment of designs for learning tools by the specialists working with pupils with SPIMD.

### The novelty of the learning tool

The respondents had to assess the following statement: “The learning device is novel” on the Likert scale (5-fully novel, 1-nothing new about this tool). Lower values of the scale refer to the lack of novelty and higher values to considerable novelty. The middle value of the scale can be interpreted as “I cannot tell”. Most of the specialists (n=10) were not able to assess the novelty of the touch-sensitive cloud/screen which had an innovative technical solution. Technical innovativeness could actually be the reason for such an assessment, since it is hard to evaluate by only looking at the drawings. The cloud which amplifies sounds were considered by most respondents as novel. The other tools were assessed as lacking novelty. The initial task given to the designers was to create a new learning tool or improve the existing ones. Based on the results of the study it can be assumed that the improvements to the existing learning tools were not noticed; only the novelty of the ideas was assessed. The evaluations of the specialists differed a lot. The differences can be explained with different professional backgrounds of the respondents, their different understanding of the term ‘novelty’ as well as their different reading of the drawing on which the evaluations were based.

### The suitability of the learning tool for the needs of the pupils with SPIMD

The respondents assessed the statement „The designer has understood the needs of pupils with SPIMD” on a Likert scale (5- has understood very well, 1-has not understood at all). The lower values on the scale refer to not taking into account the needs of the pupils with SPIMD and higher values to these needs having been considered. The middle value of the scale can be interpreted as “neither this nor that”. In short, it can be said that the modules, the pillow supporting development, the safe circle and the therapeutic pillows were evaluated as meeting the needs of the pupils with SPIMD. In case of the arc/arch and the tactile domino, the specialists expressed contradictory opinions. The respondents were unable to assess the suitability of the touch-sensitive cloud/screen and the cloud amplifying sounds for the needs of the pupils with SPIMD.

### **The use of the learning tool in everyday work with pupils with SPIMD**

The statement “I would use the learning tool in my everyday work” was assessed by the respondents on a 5-point Likert scale (5- “would definitely like” to 1- “I do not need such a tool”). The lower values on the scale refer to the tool not to be used, and higher values to the willingness to use the tool in everyday work. The middle value of the scale be interpreted as “maybe I would use”.

In short, it can be said that the special education teachers would use on a daily basis the tactile domino, the modules, the pillow supporting development and the safe circle. The physiotherapists would use the modules and the tactile domino. The speech therapists would need in their work the cloud which amplifies sounds and the arc/arch. The psychologists would use the tactile domino, the pillow supporting development, the arc/arch, the safe circle, and therapeutical pillows. The special education teachers added a note in the questionnaire about the technical solution of the arc/arch: „I wouldn't use for studying since the tool does not muffle the sound (too much background noise). The arch can collapse, the *Velcro* fastenings can just unfasten, and the things can get into the mouth and the nose”. The doubt of special education teachers regarding the use of the arc/arch with a novel solution are justified. The learning tool would need testing as a prototype. In short, it can be said that novel things are very hard to notice by looking at drawings. Based on the study results it may be assumed that improvements to the existing learning tools were not always noticed; only the novelty of the idea was assessed the evaluations of the specialists regarding the novelty of the learning tools differed a lot. The differences can be explained with different disciplines of the respondents and with a different understanding of the term “novelty”. Solutions similar to the currently used learning tools were assessed as meeting the needs of pupils with SPIMD. The neutral position was taken in evaluating innovative tools. This is the sign of the carefulness of the specialists in applying new solutions. This serves as the proof for the need for stronger cooperation between the designer and the specialists working with pupils with SPIMD. The operating principles of the tools with innovative technical solutions need to introduce to the specialists. Also, prototypes should be made.

In open questions the specialists were asked to name the positive and worrisome aspects of the tools created for pupils with SPIMD. It appears from the responses that a learning tool should be: multifunctional and easy to combine (thoroughness and user-centredness); child-friendly, playful; aesthetic, novel; safe; taking into account the concept of special needs; possible to improve; made of natural materials; offering new design solutions.

At the same time the concern was expressed about the safe use of electronic devices. Several questions about the care and cleaning of learning tools were asked. Since the assessment of the specialists was based on the drawings, the designer could take the specialists suggestions into account and improve the technical solution of the learning tool.

#### ***Study 4: the prototypes and the evaluation of prototypes***

Bearing in mind the evaluations of the designs for learning tools by the specialists, it was taken into account that the target group for such product is not limited only to children with SPIMD, but these should be possible to use also by children with different special needs or normal development. Seven prototypes were made. There were no prototypes based on the safe circle, since the designer could not participate in the process of creating the prototypes. Photos of prototypes are available at Estonian Academy of Arts home page (Ilves et al., 2011).

The prototypes were given for using to the rehabilitation unit of TCH. The user experiences of the specialists working there give relevant feedback, since children on rehabilitation have a variety of very different needs, and it was important to see from the feedback, whether the tools created for SPIMD children could also be used with a wider target group. The prototypes are used on a daily basis by three specialists: two physiotherapists and one occupational therapist. Children with very different needs go to the therapy in the unit: a slight lag of sensory motor skills, patients with different neurological diagnoses and multiple disabilities (such as *Dystrophia Muscularum Duchenne*, *Cerebral palsy*, *Morbus Langdon-Down*, *Spina bifida*, *Hydrocephalus*). Children attending the therapy are from 3 months to 21 years old. A therapy session lasts for 60 minutes (the number of children per day varies, since the length of the specialist's working day varies). Therapy is provided for children in out-patient care or those receiving inpatient rehabilitation in the neurological unit of the hospital. The work of specialists involves the development of motor skills and everyday skills, as well as cognitive skills of children. This makes it possible to receive varied user feedback. The interviews were conducted when the learning tools had been

in use for 3-4 months and the condition of prototypes was controlled after three years of use. One of the therapists was interviewed on the phone, the other two in the therapy room. The interviews were carried out in different ways due to the busy schedule of the specialists.

The specialists' feedback to using the prototypes and the condition of prototypes after four years of use in Table 1. Additionally, the therapists emphasised the appropriate design: "I like the patterns and materials. If there is too much going on at the same time (there are already colourful therapy balls and mats in our room), then it gets confusing. Spots and stripes make the modules more fun. No one has asked, why there are no teddy bears, flowers or dolls depicted on them. I have also noticed that children tend to select simple items, not those that are varicoloured and do several things." When comparing the assessment of the designs with the use of the prototypes, it appeared that the specialists noticed the same shortcomings: the reliability of tools using electricity and the instability of the Arch, and it is apparent from the user experience of prototypes that when taking the needs of the SPIMD pupils into account when designing learning tools, such tools can also be used in a wider target group (Table 1).

Table 1

### Specialist feedback on using prototypes

Title of the learning tool	Who was the prototype used on	Observations
1. Tactile domino	Can be used with all children, but not suitable for children who bite things or put things into their mouth.	<p><i>Design (size, materials, colours and others):</i> size (8 x 16 x 1.5 cm) is suitable. It's easier to grasp blocks when they are attached to the base (Velcro attachment). Blocks are very lightweight, but to get them off the base, you need to apply some force, so very suitable for children with muscular disorders.</p> <p><i>Shortcomings discovered:</i> the plastic fringe element is not durable.</p> <p><i>Additions:</i> there could be another colourful block to add even more contrast.</p> <p>Condition of prototypes after four years of use: currently in use, prototype is working.</p>
2. Modules	Everyone, who attend therapy and have the need.	<p><i>Design (size, materials, colours and others):</i> children have noticed stripes and spots; have combined several combinations (stripe and spot and others). Textile cover has been very durable, has not been torn or broken. The module's filling of half-stiff rubber foam is suitable, size (40 x 40 x 40 and 40 x 20 x 40 cm) and weight are suitable.</p> <p><i>Shortcomings discovered:</i> modules hold together well if placed on therapy mat (on the floor, they start moving).</p> <p><i>Additions:</i> the attachment between modules should be stronger. For sensory-motoric learning, there could be the possibility of attaching covers of different materials (furry, rough, and others) to the modules, and some modules could have different levels of stiffness. There could be a longer "board that could also be used as a table".</p> <p><i>Condition of prototypes after four years of use:</i> currently in use, prototype is working. Cover material is fine, but the magnetic fasteners do not work, as the fasteners that had been selected did not correspond to the magnetic force (magnets have been removed).</p>
3. Pillows supporting development	Suitable for children with motor skill disorders. Very young children	<p><i>Design (size, materials, colours):</i> Size (40 x 28 x 6 cm) is suitable; easy to use with two hands. Child with sensory disorder did not like the material (artificial felt)</p> <p><i>Shortcomings discovered:</i> there was a pressed stud and a button; the button came off.</p>

Title of the learning tool	Who was the prototype used on	Observations
(2 pieces)	(under 2 years of age) showed no interest in them	<p><i>Additions:</i> the covers could be changeable and made from different materials.</p> <p><i>Condition of prototypes after four years of use:</i> currently in use, prototype is working</p>
4. Therapeutic pillows (4 pieces)	<p>Suitable for all patients, whose body position needs correcting (e.g. lying on the back, sitting)</p> <p>Also suitable for young children as 'companions', e.g. when learning to walk; 'animal helps to walk'</p>	<p><i>Design (size, materials, colours):</i> The lack of details is not a problem: <i>children have not asked why the creature has no eyes.</i> Measurements are suitable (80 x 70cm). Younger children touch the tactile elements visible on the pillow, older children are interested in the tactile elements that are "hidden" inside the item</p> <p><i>Condition of prototypes after four years of use:</i> currently in use, one pillow is missing, but 3 are being used</p>
5. A cloud that amplifies sounds		<p><i>Shortcomings discovered:</i> It was impossible to use the prototype, as the 5W Audio Amplifier Kit that was used is not a suitable solution</p> <p><i>Additions:</i> There should be a suitable solution to receive and amplify sound</p> <p><i>Condition of prototypes after four years of use:</i> not in use. technical solutions were not durable</p>
6. Touch-sensitive cloud/screen		<p><i>Shortcomings discovered:</i> Problems with fastening on the wall: as they wanted to use the prototype both on the wall and on the table, the wall attachments could not hold up with the change of position. Switching the device off partially with current switches is not a suitable way of doing that. The LED screen can only be seen well in a dark room</p> <p><i>Additions:</i> There should be the possibility of adding different covers to the switches (different colours, tactile elements) There should be solutions to technical shortcomings (attachments, suitable switches, more powerful source of light)</p> <p><i>Condition of prototypes after four years of use:</i> not in use: problems with the technical solution.</p>
7. An arc		<p><i>Design (size, materials, colours):</i> the use of light material is suitable</p> <p><i>Shortcomings discovered:</i> the arc failed to stand in a stable upright position. The base of the arc (195 x 150cm) is too narrow, children cannot really fit underneath</p> <p><i>Additions:</i> to improve the technical solution, to ensure stable upright position</p> <p><i>Condition of prototypes after four years of use:</i> Not in use: problems with keeping a stable upright position. A suitable solution has not been found</p>

To date, there has been no in-depth study into the needs of SPIMD students in Estonia; this is the first interdisciplinary approach to creating learning tools for SPIMD students. This article is based on a research focusing on the following problem: the needs of pupils have not been considered when

creating tools supporting learning. The research shows that learning tools do not always provide clear and strong stimuli for pupils: learning tools are too diverse; in photos and pictures, the figure cannot be distinguished from the background and auditory learning tools suffer from poor sound quality. It can be concluded from the results of the study that learning tools of inappropriate design (visual, tactile or auditory) do not support understanding the topic that is taught. J. Brodin (1999) also argues that if children with profound multiple disabilities get the right stimuli (i.e. adapted toys corresponding to their developmental level and a stimulating and supportive environment), they are not passive.

It results from this research that in Estonia, at schools teaching SPIMD pupils, the toys meant for young children are widely used. Based on the current paper, it can be concluded that the toys that are being used do not even meet the requirements of young children, being of poor quality and not considering the aesthetic requirements. These toys are not suitable for using with SPIMD pupils either, as these do not correspond to their age. In addition, toys meant for children often have very small buttons and switches, which makes using these items difficult or impossible with SPIMD pupils, as they have limited fine motor skills and the measurements of their hands are significantly larger than the hands of small children. Pupils have difficulties with grasping and holding items. Therefore, toys first need to be assessed regarding their quality and after that they can be adapted to be used by children with special needs. Research on infants' toys has found that only 5 % of the toys analysed are actually accessible for children with hearing, motor and visual impairment and did not require any adaptation or help to be played (Perino, 2017). The students, who participated in the study, thought that actually it's not just the problem of the special school, rather a general thing about toys- screaming, whining things with unclear functions. By analysing the toys more closely, E.O. Smirnova (2011) finds similar that "*the best of designs and the toy's potential usefulness can be devalued by its low quality; toys should not break easily and should correspond to the child's age*". As recommended by C.G. Simpson and S.A. Lynch (2003), although the selection of appropriate toys holds a significant role in developing positive play experiences for young children, it may be necessary to adapt toys and materials to increase learning and social interactions for children with disabilities. Most adaptations revolve around issues regarding toy stabilization, toy extensions, toy attachment, and toy confinement. S. Doctoroff (2001) notes that all young children can play with the same play materials. However, in some instances play materials that meet the motor or sensory needs of children with disabilities will need to be specifically selected or existing toys and materials will need to be adapted. When we talk about SPIMD child's progress and development must know that they need personalised environmental changes (Caprino, Stucci, 2017).

All persons with SPIMD, should be considered visually impaired until proved otherwise (Van Splunder et al., 2006; Broek et al., 2006). The conducted study showed that suitable design for partially sighted persons has not been implemented in the existing learning tools.

The author opines that in creating new learning tools, it should be considered that most SPIMD pupils are visually impaired. It needs to be highlighted that the learning tools to be created need to be adjustable according to the special needs and individuality of pupils. Therefore, it is essential to understand the necessity of implementing user-oriented and universal design. It can be seen from the user experience of prototypes that by considering the needs of SPIMD pupils when creating learning tools, the tools can be used in wider target groups as well. This is not the case the other way around – unadjusted toys intended for small children cannot be used as learning tools in case of SPIMD persons. Taking account of the previous research and based on the results of our study, in creating new learning tools it should be taken into account that the product has to be of high quality and reliable; it has to consider the special characteristics of the cognitive processes and the underdeveloped motor skills of the pupils with SPIMD; it has to be universal, allowing adjustments according to individual special needs, it has to be easy to clean. It resulted from the study that the specialists' assessment on the design coincided with the assessment given to prototypes. This result gives reason to assume that more attention should be paid to the designing stage, and it would be a good idea to give the designer a specific task (exact description of what is needed). At the same time, however, it could also hinder the creation of truly innovative tools. Is important to know, that children with SPIMD need support that facilitates their ability to observe and to enter in contact with their children, helping them to propose stimulating activities and to interact in the most appropriate manner, without replacing them (Caprino, Stucci, 2017). J. Brodin (1999) finds that if children with profound multiple disabilities get the right stimuli (i.e. adapted toys corresponding to their developmental level and

a stimulating and supportive environment), they are not passive. Therefore, it is of utmost importance to create learning tools that would take the needs of SPIMD into consideration.

## Conclusions

The existing learning tools were assessed by specialists working with pupils with PIMD on a daily basis. It appeared that:

- three groups of tools can be distinguished that are used in the development of SPIMD pupils' cognitive skills: musical instruments, toys and self-made learning tools;
- currently, these tools do not take into consideration the individual needs of these children; the tools are often of poor quality and not adapted to the special needs of the pupils.

The problem with the toys are:

- their quality is poor;
- they are not age-appropriate (meant for babies and infants);
- colours and design: The toys are 'too colourful' and of unsuitable colour (a blue bear, pink elephant). In the photos and pictures the figures do not stand out from the background (shiny, no contrast and other);
- regarding auditive toys, bad sound quality and the lacking possibility to regulate the volume were emphasised;
- products for infants have often very small buttons and switches which make them hard or impossible to use for children with PIMD (inadequate/deficient fine motor skills and a considerably larger hand size compared to infants). Pupils experience difficulties in grasping and holding such tools;
- many pupils with PIMD have uncontrollable salivation, or the pupils try to 'stick things in their mouth and bite them'. Bearing this in mind, the learning tools should be of very good quality and easy to clean.

In creating new learning tools, it should be taken into account that the product:

- it must be considered that the development of cognitive skills is closely connected to the development of motor, social, daily and communicative skills;
- must consider the special characteristics that arise from the cognitive process of pupils with SPIMD (e.g., in differentiating between sense stimuli);
- must be high-quality, durable and easily cleaned;
- must be possible to operate the buttons, switches, attachments even with deficient fine motor skills;
- must be universal and adaptable to an individual's special needs.

Learning tools with unsuitable design (visual, tactile as well as auditive) do not support the understanding of what is being taught. In the process of creating learning tools, there should be cooperation between specialists working with SPIMD pupils, neuroscientists, designers, engineers, producers and others. According to the specialists participating in this study, such cooperation would allow creating "*truly innovative products*" and an interdisciplinary approach to the creation of learning tools can to a considerable extent support the learning of different essential skills by the pupils with SPIMD.

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## **Your Experience is Important!**

### **The User Experience Questionnaire (UEQ) - Estonian Version**

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**Abstract:** The User Experience Questionnaire (UEQ) is a measuring instrument for evaluating subjective experience of the users of interactive products. The study set out to adapt the UEQ to the Estonian language and to use it for evaluating everyday objects (learning tools), i.e. to test if the UEQ can be used also for a class of objects that were not in the scope of the construction of the UEQ. The data analysis is based on the instrument developed by the creators of the UEQ: UEQ Data Analysis Tool. It can be concluded from the study that the adaptation of the UEQ to the Estonian language was successful as the measurable values were mostly within the permissible range. Although the scale Dependability has a smaller consistency value, it is not small enough to indicate a significant problem. The study demonstrated that it is possible to use an instrument originally designed to assess interactive products for assessing non-interactive products. Thus, the questionnaire is presumably applicable to assess a range of varied products.

**Keywords:** user experience; measurement; user-centred design; student-centred learning; questionnaire; special education.

#### **Introduction**

In education, as well as in designing everyday objects, more and more attention is paid to the learner/user experiencing positive emotions. For example, in a recent interview J. Groccia admitted that the emotional side in learning is very important and the learner is able to much better concentrate on learning when feeling secure (Merisalu, 2015). When the focus of the design changes from a “well-fare” to a “well-being” society, the possibility of designing for happiness may also arise (Hassenzahl et al., 2013).

Today there is a movement towards an inclusive environment, where increasingly more importance is attached to the need to create products and services that would correspond to the needs of different target groups. The authors of this paper focus on education, more specifically on special pedagogy. In the interests of society as a whole, it is completely natural to expect that all children receive education that meets their physical and mental abilities, needs and possibilities. Therefore, learners’ needs should be taken into account when developing learning tools and environments. Research on infants’ toys has found that only 5 % of the toys analysed are actually accessible for children with hearing, motor and visual impairment and did not require any adaptation or help to be played (Perino, 2017). A study conducted in Estonia shows that to teach children with severe and profound intellectual disabilities and multiple disabilities mainly learning tools produced by teachers themselves and musical instruments are used. However, it has to be stated that the selected infants’ toys and learning tools made by teachers often do not take into consideration the special needs arising from the cognitive processes of students. When designing for people with abilities and needs that differ much from the designer’s own experience, it is important to use user-centred design techniques. When working with people with a mental impairment, this may be even more important, because the nature, capabilities, limitations and behaviour of the individuals belonging to this target group are very diverse (Hosea, Vermeeren, 2009). Thus, in order to develop aids that meet students’ (children’s) needs, user feedback should be requested during the whole designing process. Different people understand, the term user experience, in very different ways (All About UX, 2017).

In this paper, we rely on the definition by M. Hassenzahl (2008): “*UX is a momentary, primarily evaluative feeling (good-bad) while interacting with a product or service. By that, UX shifts attention from the product and materials (i.e., content, function, presentation, interaction) to humans and feelings – the subjective side of product use.*” Therefore, user experience is a summary of the findings: fun of use, aesthetics, emotions, stimulation or attractiveness (Cota et al., 2014). The best opportunity would be to ask feedback from the users, i.e. children (*primary users*) themselves. Unfortunately, collecting opinions from children with special needs or infants is complicated, as they either cannot answer or due to their

special need are not able to answer. Since most frequently teachers are the ones who, based on their earlier experience of work with children with special needs, choose which teaching aids to use, one way is to ask the teachers (*secondary users*) to give feedback on the applicability of a teaching aid and compare the outcome to the responses received from students. Naturally, it has to be taken into account that in that case the notions of the secondary users are not necessarily correct or in keeping with the opinions of primary users (Hosea, Vermeeren, 2009). People who design and develop these tools have to address the needs of secondary users and build them in the design and evaluation process of the system. It may mean that conflicting needs between primary and secondary users need to be dealt with (Alsos, Svanæs, 2011).

It is important that the implementation of an instrument of measuring user experience would allow fast and simple assessment of a teaching aid in different stages of its development. Considering the above, the authors found that the User Experience Questionnaire (UEQ) that is available free of charge (the questionnaire itself and all material required for data analysis and data interpretation can be downloaded in several languages from [www.ueq-online.org](http://www.ueq-online.org)) could offer a quick opportunity for comprehensive assessment of user experience.

### *User Experience Questionnaire*

The User Experience Questionnaire (UEQ) provides an opportunity to quickly assess the experience of the users of interactive products. The questionnaire is designed in a format that allows users to instantly express the feelings, impressions and attitudes that they experience when using a product. The scales of the UEQ cover a wide range of user experience, measuring classical usability aspects (efficiency, perspicuity, dependability) as well as user experience aspects (originality, stimulation) (User Experience Questionnaire, 2017). The original version of the UEQ was created in the German language in 2006 (Laugwitz, Schrepp, Held, 2006). A handbook (Schrepp, 2017) describes the handling an interpretation of the results. In its current form, the UEQ can be easily applied, offering an opportunity for reliable and valid measurement of user experience, and the received data can complement the data obtained by other evaluation methods that have subjective quality ratings (Laugwitz, Held, Schrepp, 2008).

The 6 scales of the UEQ contain 26 items as follows (Schrepp, Hinderks, Thomaschewski, 2017b).

- *Attractiveness: General impression of the product. Is it liked or disliked by users? Do they perceive it as attractive, enjoyable or pleasing?*  
6 items: *annoying / enjoyable, good / bad, unlikable / pleasing, unpleasant / pleasant, attractive / unattractive, friendly / unfriendly.*
- *Perspicuity: How easy is it to get to know the product? Can it be easily learnt and understood? Is it clear?*  
4 items: *not understandable / understandable, easy to learn / difficult to learn, complicated / easy, clear / confusing.*
- *Efficiency: Do users have to make an effort to solve their tasks? How efficient and fast is the interaction? How immediate is the product's response to user input?*  
4 items: *fast / slow, inefficient / efficient, impractical / practical, organized / cluttered.*
- *Dependability: Does the interaction allow the user to feel in control? Can the system's behaviour be predicted? Does working with the product make the user feel safe?*  
4 items: *unpredictable / predictable, obstructive / supportive, secure / not secure, meets expectations / does not meet expectations.*
- *Stimulation: How exciting and motivating is it to use the product? Does the user have fun?*  
4 items: *valuable / inferior, boring / exciting, not interesting / interesting, motivating / demotivating.*
- *Novelty: Is the product innovative and creative? Is the users' attention captured?*  
4 items: *creative / dull, inventive / conventional, usual / leading-edge, conservative / innovative.*

*Attractiveness* belongs to the dimension of pure valence. *Perspicuity*, *Efficiency* and *Dependability* represent pragmatic quality (which is goal-directed) and *Stimulation* and *Novelty* appear as representatives of hedonic quality (and are not goal-directed) (Schrepp, 2017). It is not assumed that the scales are independent (Figure 1). The general assumption is that the evaluation of the *Attractiveness* is based on the impression towards the other 5 scales, i.e. that the attractiveness is a result of the perceived perspicuity, efficiency, dependability, stimulation and novelty (Schrepp, Hinderks, Thomaschewski, 2017b).



Figure 1. Assumed scale structure of the UEQ (Schrepp, Hinderks, Thomaschewski, 2017b).

	1	2	3	4	5	6	7		
annoying	<input type="radio"/>	enjoyable	1						
not understandable	<input type="radio"/>	understandable	2						
creative	<input type="radio"/>	dull	3						
easy to learn	<input type="radio"/>	difficult to learn	4						
valuable	<input type="radio"/>	inferior	5						
boring	<input type="radio"/>	exciting	6						
not interesting	<input type="radio"/>	interesting	7						
unpredictable	<input type="radio"/>	predictable	8						
fast	<input type="radio"/>	slow	9						
inventive	<input type="radio"/>	conventional	10						
obstructive	<input type="radio"/>	supportive	11						
good	<input type="radio"/>	bad	12						
complicated	<input type="radio"/>	easy	13						
unlikable	<input type="radio"/>	pleasing	14						
usual	<input type="radio"/>	leading edge	15						
unpleasant	<input type="radio"/>	pleasant	16						
secure	<input type="radio"/>	not secure	17						
motivating	<input type="radio"/>	demotivating	18						
meets expectations	<input type="radio"/>	does not meet expectations	19						
inefficient	<input type="radio"/>	efficient	20						
clear	<input type="radio"/>	confusing	21						
impractical	<input type="radio"/>	practical	22						
organized	<input type="radio"/>	cluttered	23						
attractive	<input type="radio"/>	unattractive	24						
friendly	<input type="radio"/>	unfriendly	25						
conservative	<input type="radio"/>	innovative	26						

Figure 2. The English version of the UEQ (Schrepp, Hinderks, Thomaschewski, 2017a).

Applying the UEQ does not require much effort. Usually 3-5 minutes are sufficient for a participant to read the instructions and complete the questionnaire. The UEQ can be used in a paper-pencil form as part of a classical usability test (and this still is the most common application) (Schrepp, Hinderks, Thomaschewski, 2017b). The 26 items of the UEQ are listed in the table below (Figure 2). Each item of the UEQ consists of a pair of terms with opposite meanings.

Participants rate each item on a 7-point Likert scale. The answers are scaled from -3 (fully agree with negative term) to +3 (fully agree with positive term). Half of the items start with the positive term, the others with the negative term (in randomized order) (Schrepp, Hinderks, Thomaschewski, 2017b).

The UEQ is available in 20 languages. An Excel sheet for data analysis, and the UEQ Handbook are available free of charge at User Experience Questionnaire homepage (<http://www.ueq-online.org>).

For semantic differentials like the UEQ, it is essential that participants are able to read the items in their mother tongue (Cota et al., 2014). Therefore, it is important to be able to use the questionnaire in the native language in Estonia.

The goal of the article is to translate the UEQ into the Estonian language and check the applicability of the test originally designed to assess interactive products on the assessment of everyday objects (learning tools) and ascertain the reliability of the translated version.

## **Methodology**

### ***Development of the Estonian Version of the UEQ***

The creators of the UEQ (M. Schrepp and A. Hinderks) were contacted by email to ask their permission to adapt the questionnaire to the Estonian language. The authors gave their permission as well as instructions for conducting the process. The adaptation was carried out according to the received instructions. The original German language version as well as the English language version and translations into several other languages are available on the UEQ homepage. The translation into the Estonian language was based on the German and English language versions. First, it was explained to the translators what the test was intended to measure and how important it was to select appropriate words in the Estonian language. Next, the translators were able to familiarise themselves with the materials on the UEQ webpage. While translating the test into Estonian, an analogy with the translation into Portuguese was followed, as in the process of translating the relation to the original dimension has to be maintained, i.e. the questionnaire has to measure the same qualities, which means that the chosen words need to have a similar meaning to the original words and make respondents experience the same feelings when performing the test independent of the language they use (Cota, Thomaschewski, Schrepp, Goncalves, 2014).

Firstly, professional English-Estonian and German-Estonian translators carried out the translation into Estonian. That was followed by the comparison of the two versions of the translation in Estonian and finding relevant Estonian language synonyms. At the next stage, a professional Estonian language editor checked the Estonian translation. Thereafter, a user experience specialist assessed the vocabulary used in the test to ensure its consistency with the daily used special terminology. Then the Estonian version was translated back into the English and German languages. An outcome of that process was the versions in the original languages (German, English), which were identical with the initial versions. The last step was testing the Estonian language version of UEQ in practice.

### ***Participants and Context of the Study***

The study aimed to focus on the implementation of the UEQ rather than on the assessment of interactive objects or teaching materials, to allow us later to use this questionnaire for assessing teaching aids or learning tools used in special education. It was essential to find participants who would use the same aids or tools over a certain period of time. Fifty-one students of Tallinn University whose minor subject was Learning Support and who were taking the course “Play and Movement as Supportive Activity in Remedial Education” participated in the study. They were all native speakers of Estonian.

As part of the above course the students made a Bean Bag of cotton fabric, weighing 100g, with measurements 15x11cm, filled with different material (rice, peas, beans or buckwheat). During the course the students learned how to use the Bean Bags in educational work with children with special needs (fine motor skills exercises, various games and motor activities). At the completion of the course the students assessed their user experience of utilising the Bean Bags by means of the Estonian language version of the UEQ. For that purpose, the participants were first introduced to the questionnaire and the principles of assessing user experience. The students were informed that the participation in the study was voluntary and anonymous.

### ***Data Collection Procedure***

The Estonian language version of the UEQ was used to measure user experience of special education leaning tools (Bean Bags). The students participating in the study used a version of the UEQ printed on paper, marking their responses on the scales with a pen or pencil. To analyse the received data, we applied the UEQ Data Analysis Tool, which is available free of charge on the UEQ homepage. The goal of this tool is to facilitate the analysis of UEQ data. First, the data obtained from respondents needs to be entered into the Data Worksheet. The tool then calculates all the statistics necessary to interpret the results and automatically creates diagrams (User Experience Questionnaire, 2017).

### **Results and Discussion**

#### ***The First Evaluation of the Estonian Version***

The data analysis was carried out by means of the instrument developed by the creators of the UEQ: UEQ Data Analysis Tool, which is downloadable free of charge from the UEQ homepage. The authors of the instrument have taken into account that UEQ does not produce an overall score for the user experience. Because of the construction of the questionnaire it does not make sense to build such an overall score (for example by calculating the mean over all scales), since this value cannot be interpreted properly.

#### ***Detect Suspicious Data***

Not all participants will always answer all items seriously. To detect such more or less random or not serious answers a simple heuristic is used. All items in a scale should measure a similar quality aspect. The idea to detect random or not serious answers is to check how much the best and worst evaluations of an item in a scale differ. If there is a big difference ( $>3$ ) this is seen as an indicator of a problematic data pattern. Such situations can also result from random response errors or misunderstanding of an item. Thus, it makes no sense to consider a response as problematic if this occurs just for a single scale. But if this is true for 2 or 3 scales, it is of course a clear hint that the response is unreliable (User Experience Questionnaire, 2017).

In our study, response errors or misunderstandings were identified in three respondents out of 51 participants. Two respondents' value of the indicator for a problematic data pattern was "4" and that for one respondent was "5". This means that overall the Estonian language version of the UEQ had been understandable and the majority of the respondents had answered seriously.

#### ***Cronbach's Alpha coefficient***

Cronbach's Alpha coefficient (Cronbach, 1951) was calculated for each of the sub-scales. The Cronbach's Alpha value are: attractiveness 0.86; perspicuity 0.6; efficiency 0.65; dependability 0.52; stimulation 0.8; novelty 0.76. Only the scale Dependability has a smaller consistency value. Similar results with Cronbach's Alpha coefficient  $< 0.7$  were also received for some subscales on the first-time use of the Portuguese and Indonesian language versions (Cota et al., 2014; Santoso et al., 2016). The Indonesian version also assessed learning tools (although digital ones, in an e-Learning Environment) and the Dependability value was lower ( $\alpha = 0.58$ ), which was associated with the less important role of this property for the user experience of a learning platform or with possible problems with the interpretation of the items in this scale (Santoso et al., 2016). The same may be true of the Estonian version and, in addition, it may be an effect of the size of the sample. Regarding the Estonian version, some variation may be due to the learning tool (Bean Bag) chosen for the assessment. Although the scale Dependability has a smaller consistency value, it is not small enough to indicate a significant problem. According to this result, the reliability of the Estonian version of the UEQ is satisfactory.

#### ***The Benchmark***

The benchmark graph from the Excel-Tool shows the UX quality of the evaluated product. The benchmark is invaluable in the first-time application of the UEQ to measure a product, i.e. there are no earlier evaluation results available (Schrepp, Hinderks, Thomaschewski, 2017b). The benchmark can be used to compare the results measured with the UEQ to the results of other products (Santoso et al., 2016). Since

at the present time the benchmark data set only contains a limited number of evaluation results, a decision was taken to limit the feedback to 5 categories per scale (Schrepp, Hinderks, Thomaschewski, 2017a):

- *excellent: the product that is evaluated appears among the best 10% of results;*
- *good: in the benchmark 10% of the results are better than the evaluated product and 75% are worse;*
- *above average: in the benchmark 25% of the results are better than the evaluated product and 50% are worse;*
- *below average: in the benchmark 50% of the results are better than the evaluated product and 25% are worse;*
- *bad: the evaluated product is among the worst 25% of the results.*

The Figure 3 below illustrates the benchmark of the Bean Bags.

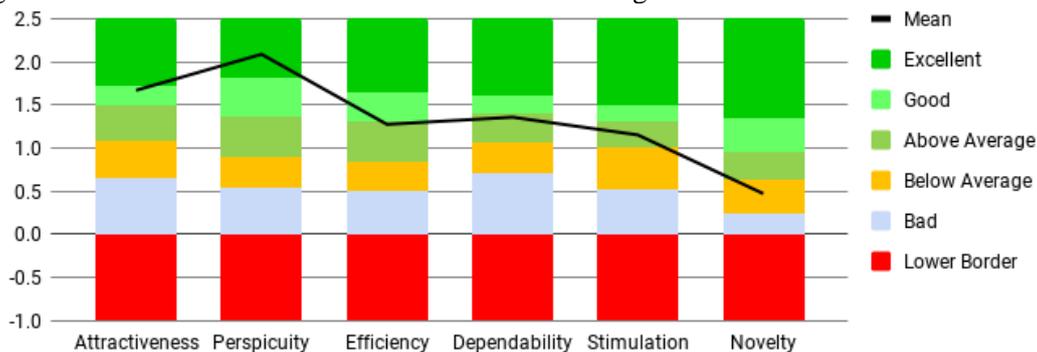


Figure 3. Visualization of the benchmark of Bean Bags.

The line represents the results for the evaluated product. The coloured bars represent the ranges for the scales' mean values.

The creators of the UEQ have taken into account that over time the expectations of the general UX have increased. Given the fact that the benchmark also includes data from the measurements of established products, it is necessary for a new product to achieve the *Good* standard in all scales (Schrepp, Hinderks, Thomaschewski, 2017b). The results reveal (Figure 3), that the only value that is lower is related to Novelty. This is fully justified, as the Bean Bags were made to match the existing bags that had been used before and students merely learned to use them as tools to support learning. The benchmark can be used to compare the results of a product measured with the UEQ to the results of other products (Santoso et al., 2016). The developers of the UEQ recognise the need to create different benchmarks for different product categories in the future (Schrepp, Hinderks, Thomaschewski, 2017b).

## Conclusion

The task of this study was to adapt the UEQ to the Estonian language and to carry out the initial assessment of user experience. It proved a great challenge to test for the first time if the measuring instrument originally devised to evaluate user experience of interactive products is applicable to assess a non-interactive tool (Bean Bag) used in special needs education. The study allows us to conclude that the adaptation of the UEQ to Estonian was successful, since the measurable values were mostly within the permissible range. Although the scale Dependability has a smaller consistency value, it is not small enough to indicate a significant problem. According to this result, the reliability of the Estonian version of the UEQ is satisfactory.

UEQ allows a quick and easy analysis of user feedback on a product. Our study showed that an instrument originally developed for measuring interactive products could also be used to assess non-interactive objects. This proves that the questionnaire is suitable for evaluating very diverse products. Obviously, in the future when the UEQ is going to be used to assess non-interactive products, it is essential to develop a separate benchmark for that category.

The authors of this article were interested in using the UEQ to evaluate learning tools for special needs education. The UEQ allows, for instance, assessing teachers' user experience and comparing the received data to students' user experience. Unfortunately, the UEQ is not suitable for getting feedback from infants and children with intellectual disabilities (assessment by means of behavioural indicators would be more

appropriate for them, e.g. eye tracking). Presumably, the implementation of the UEQ could be feasible for basic school students. At the same time, in the studies of infants and children with intellectual disabilities (they could be called primary users) a significant role belongs to parents, carers and teachers as well as various specialists (secondary users), who support the children and the cared for in their daily activities and learning. They may be considered very important sources of background information. The UEQ is a perfect tool for assessing the user experience of secondary users, which allows collecting a wide range of background information. Currently the Estonian language version is available free of charge on the UEQ homepage and for that reason a copy of it has not been attached to the article.

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## Didactic Principles in Estonian Craft and their Function in Interdisciplinary Integration

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**Abstract:** A new Estonian national curriculum for basic schools, implemented in 2014, supports better connections between theoretical knowledge and practical life skills. The curriculum focuses on integrating the learning content and acquired skills into everyday life. The current article gives an overview of the study, which aimed to identify Estonian craft teachers using teaching methods and didactic principles related to interdisciplinary integration. The author of this article sought answers to the following questions: What kinds of craft methodology are used in Estonian schools, and do these methodologies support interdisciplinary integration in craft lessons? This study was based on a survey conducted with Estonian craft teachers to analyse and generalise both the current experience of teaching craft in Estonia and the teachers' readiness for interdisciplinary integration. The statistical programme SPSS 22 was used to analyse the survey data. As a result, it can be concluded that Estonian craft teachers are relatively conservative in their practice, but their attitude towards integration was generally positive. In regard to methodology, 'old-fashioned' teaching methods are preferred, new methods are not applied quickly and cooperation between craft and other teachers is not common in the schools.

**Keywords:** school education, craft didactics, craft and science integration, teachers' cooperation.

### Introduction

Although much has been said about the need for integration, subjects in basic schools have remained mostly isolated (Akgun et al., 2012). Estonian, as well as foreign, studies (Akgun et al., 2012; Kikkull, 2009; Soyly, Isik, 2008) show that students' subject knowledge remains significantly below the level required to solve domestic and technical problems. While a variety of integration approaches can be found in theory (Mustafa, 2011), and the Estonian national curriculum for basic schools (Government of the Republic, 2014) sets out the requirements for realisation of integration, teachers lack knowledge and experience about functional principles and the directive role of syllabi and textbooks is moderate (Kikkull, 2016).

The Estonian national curriculum for basic schools (Government of the Republic, 2014) has tried to minimise the shortages mentioned above by better integration of theoretical knowledge with practical life skills. This concept begins with learning highlights that help students apply acquired knowledge in new situations, such as solving problems, making choices, discussing the accuracy of claims and arguing their positions, as well as in their studies. Therefore, learning content and acquired skills must be integrated with students' everyday life, including their applicability in students' follow-up studies and future working life.

One of the most important student skills is the ability to transfer knowledge and skills acquired from one subject to lessons of another subject or to real life situations. The term 'transferring knowledge' essentially means to learn something in one context and apply it in another context (Fogarty, 1991). Therefore, the skill of knowledge transfer is the basis of knowledge integration. Unfortunately, students usually consider subjects as detached entities that are separate from each other and have no direct connections with each other (Perkins, Salomon, 1992). However, in such learning situations, the formation of the students' comprehensive worldview is not supported.

Insufficient use of integrative possibilities in craft lessons may be an important reason why students cannot use learned knowledge outside the subject. At the end of the 19th century, Estonian schooling was already concerned about the chaotic presentation of study material in which links between new and old material were missing (Lind, 2005). Therefore, in craft lessons, it is crucial to assert and reinforce the correctness of knowledge learned in other subjects as well as applying it in domestic and technical situations. To understand the processes that relate to craft in the environment around us, it is best to perform the processes ourselves and thus be convinced of their validity (Borg, 2006). However, these questions remain: how can a teacher put into practice the principle of interdisciplinary integration as expected by the national curriculum, and how-and to what extent-do teachers understand and implement the principles of interdisciplinary integration in craft lessons?

Practice shows that Estonian craft relies largely on teachers' experiential teaching. Also, reproductive activity is still one of the main methods used in craft lessons. However, reproductive learning should be reduced in Estonian craft to make room for creativity and experimentation as well as 'learning by doing' as practised in the Nordic countries (Kikkull, 2012). Practice has also shown that freedom of choice, creativity and experimentation lead students to learning situations where they need the knowledge acquired from other subjects to resolve a task successfully in the craft lesson.

As described above, the learning process in basic school is characterised by conflict between natural integration of craft and other subjects, and its actual realisation. This conflict affects students' ability to use subject knowledge outside that specific subject, i.e. students lack the attitude and readiness to use acquired knowledge to solve life situations, particularly concepts and skills that they have not yet learned directly (Kikkull, 2009, 2016).

Effective integration of craft and other subjects in basic school can help to solve this situation. However, the implementer of integration principles is the teacher. By analysing teachers' perceptions and practical actions and considering current theoretical views, didactic and organisational conditions can be identified that could contribute, with cooperation between craft and other subjects, to students' applied knowledge formation.

The current article gives an overview of the study, which aimed to identify Estonian craft teachers using teaching methods and didactic principles related to interdisciplinary integration.

## **Methodology**

According to this framework, the research questions are as follows: What learning methods do Estonian craft teachers use, how are the learning methods and principles of didactics in craft suited for interdisciplinary integration, and what are Estonian teachers' attitudes towards integration? The method chosen was a survey of Estonian craft teachers to gather responses to the research questions. The questionnaire consisted of 17 questions, which took about 15 minutes to answer. The questions were divided into multiple choice and free response questions. Free response questions expected either specification of a previous multiple-choice response or answering an open-ended question. The questions were divided into four categories. The first category included background questions about the craft teachers' gender, age and length of working experience, and the size of the schools where the teachers worked. The background information provided an opportunity to make different comparative data analyses and to find out whether the teachers' responses had statistically significant differences, for example, between age groups. The second set of questions aimed to identify teachers' main teaching methods and the principles of didactics used in lessons, which allowed analysis and generalisations of the Estonian craft teaching experience, and to learn how these methods function in integration between subjects. The third block of questions focused on understanding the essence of knowledge taught by the craft teacher and explaining it in the context of the learning process. This block thus dealt with integration through identifying the teachers' attitudes towards integration and whether the teachers are ready to put integration into practice. The last block of questions targeted cooperation between teachers of craft and other subjects and its perceived efficiency.

The survey was conducted via e-mail, using the e-Formular environment. To test the questions and suitability of the environment, this questionnaire was piloted with six selected craft teachers. Based on their feedback, corrections were made to the questionnaire, which helped the teachers to understand questions better and answer them with confidence.

For dissemination of the questionnaire, school network data of the Ministry of Education were used; based on this data, 498 questionnaires were mailed to all Estonian basic schools and upper secondary schools where craft was taught. Therefore, it can be said that the population of craft teachers was captured in the survey. 83 questionnaires were returned with responses, of which 90 % were men and 10 % women. While the proportion of men and women corresponds broadly to the general gender ratio of craft teachers, the data collection method used for the survey based on e-Formular raises issues of representation. It can be assumed that, apparently, the more active craft teachers who completed in the survey also belong to study subject associations and actively use computers in their work. However, the teachers who are more passive and do not use computers in their work would not have given positive

input and, therefore, it can be argued that the obtained study results show what is taking place in craft in a more positive light than it warrants.

The survey's quantitative data was analysed with the programme SPSS 22 to present different descriptive statistics and perform necessary correlation and mean comparison tests (Analysis of Variance [ANOVA], t-test,  $\chi^2$ -test, Spearman's  $\rho$ ). Where possible, Cronbach's alpha was used to measure the questionnaire's internal reliability. The open-ended questions' answers were encoded and assembled into coded content phrases or general ideas.

## Results and Discussion

To get a better overview of the structure of the survey questions, the data were divided into the following categories:

- teaching methods and principles of didactic;
- realisation of integration;
- teachers' cooperation.

### *Teaching methods and principles of didactic*

The questionnaire aimed to find craft teachers' main teaching methods and the principles of didactics they used in lessons. It allowed analysis and generalisation of the Estonian craft teaching experience as well as identification of how these methods function regarding integration between subjects.

To this end, the study examined the craft-related aims to which teachers have given greater priority. The responses were given on a Likert scale where 1 was the most insignificant and 5 the most prioritised response. Regarding this question, internal reliability control was performed and measured by Cronbach's alpha. This block of questions had  $\alpha=0,631$ , which resulted in the responses being acceptably reliable (Kurpius, Stafford, 2006). The results were summarised in a bar chart (Figure 1) that depicts the averages of responses given by the teachers. The teachers were offered four main targets as response options arising from craft syllabus goals while everyday life skills, unlike others, has not been directly written into the syllabus (Subject field: Technology, 2014). As shown in Figure 1, the teachers consider all these goals to have above-average importance.

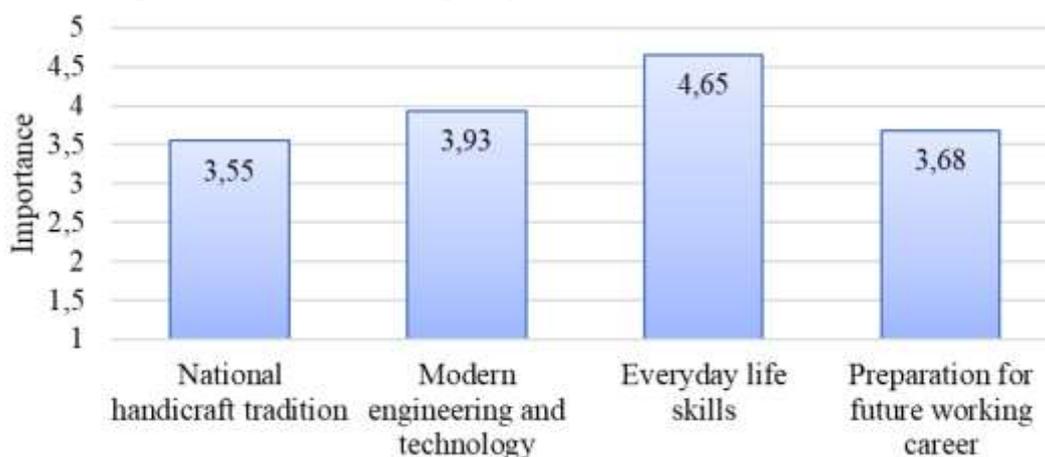


Figure 1. Priority of learning goals.

However, the teachers listed students' preparation for coping with everyday life ( $M=4,65$ ;  $SD=0,68$ ) as the most important goal in craft. The statement had a mode of 5, and 72 % teachers responded that teaching coping with everyday life was the craft's top-priority objective. Next was understanding of modern engineering and technology, and preparation for occupation. The teachers consider, however, maintaining and teaching national craft traditions to be the least important ( $M=3,55$ ;  $SD=0,97$ ).

This result indicates that teachers try to exceed the average in all of the offered study goals and to make decisions about didactic goals in the light of their own beliefs and the learning environments where everyday life skills are important. This assumption is supported by interviews with Nordic craft teachers conducted by A. Kikkull (2016), in which craft teachers claimed to teach their students mostly the technical

skills necessary in everyday life. An important possibility of integration in applied knowledge formation is hence revealed, for example, in the application of a problem-based integration model (Loepp, 1999).

Since teachers' responses were divided evenly, a comparison between teachers' working experience groups and teaching priorities was carried out to learn whether teachers with different working experiences considered different learning goals to be important. The comparison revealed that teachers' responses did not differ by working experience and that there were no statistically significant differences between age groups.

The teachers were given a free answer option to the question of why, in the teacher's opinion, some acts remain unperformed by students. The answers were encoded using the meaning condensation analysis method (Kvale, 2008). The teachers found that the most frequent cause for students' independent performance remaining undone is lack of motivation, which was mentioned 24 times. Lack of courage and hesitation at the beginning of work ranked second (13 times), which indicates that the student does not have enough prior knowledge or skills, which may also lower motivation.

Students' motivation, however, is an important base in internal integration for the emergence of student-centred and cross-student integrations, because aspiration should be aimed at supporting the creation of connections taking place in the student's head (Fogarty, 1991).

The next focus was the type of task-giving methods teachers use (Figure 2). Based on the answers, it appears that, while introducing the task, teachers use detailed guidance the most (29%), followed by showing work examples made in previous years (21%) and repeating these practical works year after year. Teachers also use prepared working instructions and drawings (15%). Teachers let students design their work in 18% of cases, and 17% of teachers conduct collective debates before working. Thus, 65% of Estonian craft lessons utilise teacher-centred methods. At the same time, it can be said that, in 35% of the study process, collective debates occur, and students can design their own work.

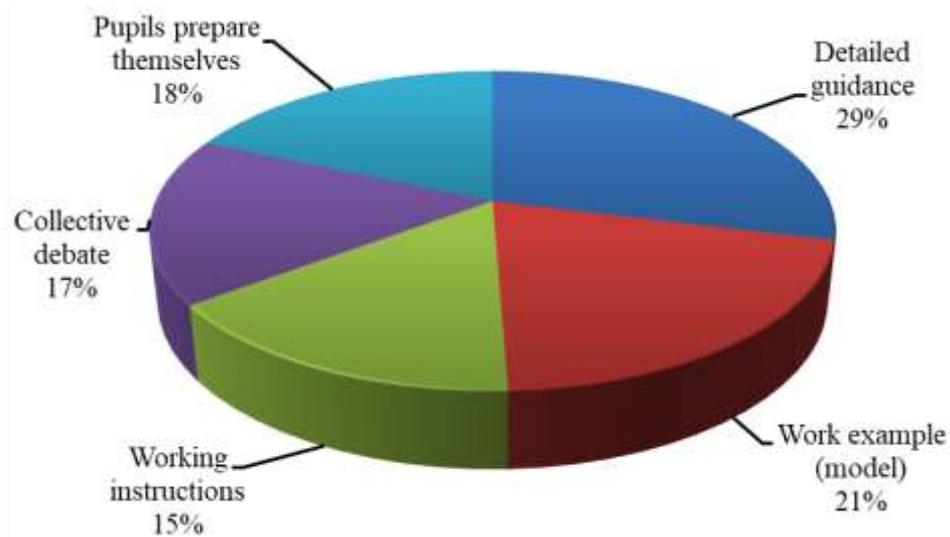


Figure 2. Task-giving methods.

Responses to this question show that the teachers use many tests, tasks and practical works. Most of the teachers follow a relatively strict worksheet, work instruction or example, leaving little time for new experiments and creativity. Unfortunately for students, practical, unique problems rarely arise that students could solve and thus integrate subjects and form integrated knowledge.

Interpretation of the results leads to the idea that respondent teachers need more encouragement and support to implement student-centred work methods, in which a larger role and responsibility in the working process is given to students. Such methods require more collective debate and independent preparation of work by students to support the modern design process principle of craft (Illum, Johansson, 2012).

Since the question of task-giving ways was intriguing, the reply pairs averages of this question were compared and t-test to prove statistical significance was performed to identify connections between different reply options. The highest statistically significant correlation coefficient was in pair 2, where detailed guidance for performing the work and giving opportunity to students to prepare the work

process themselves were compared ( $r=-0,46$  and  $p=0$ ) The negative average correlation coefficient shows the use of classical lesson methodology in which the teacher gives clear and comprehensive instructions for work and students have a relatively modest chance to have their say (Table 1).

It is also logical that there is a negative correlation coefficient between detailed guidance for work and using work sheets, which speaks to the fact that these two methods are not used together (pair 1). Comparison between answer pairs again brings out the practice of using a teacher-centred lesson methodology, common in Estonian craft.

Table 1

#### Paired samples statistics and correlations

Answer pairs		Mean	Std. Deviation	N	t	Sig. (2-tailed)	Correlation	Sig.
Pair 1	Detailed guidance	30,35	15,056	60	5,132	0,000	-0,359	0,005
	Working instructions	15,87	11,341					
Pair 2	Detailed guidance	28,94	12,505	65	3,703	0,000	-0,469	0,000
	Pupils prepare themselves	19,02	12,700					

The last question in this block asked the teachers how they led students to the acquisition of knowledge prescribed by the syllabus. In response, the teachers could select whether they do it mostly by using practical work, theoretical studies or both learning methods relatively evenly. The responses showed that more than half (53 %) of the teachers try to achieve learning goals by doing purely practical tasks and just under half (46 %) of the teachers use a combination of theory and practice in achieving the learning goals prescribed in the syllabus.

The teachers' responses show the prevailing teaching practice in Estonian craft, where students mostly make items in craft lessons and do not deal much with learning theory. In such lessons, theoretical questions are solved during practical work (that is justified in regard to personal problem solving, in the case of advanced students) or theoretical questions are not dealt with at all and students acquire only experiential knowledge in craft lessons. The teachers who combine theory with practice have likely found a balance in practising theoretical knowledge for relatively short intervals, also creating a situation for the formation of applied knowledge.

#### *Realisation of integration*

The questions in this study focused on identifying and understanding the essence of knowledge taught by the teacher in the learning process. The objective was to find out the teachers' attitudes towards integration and whether the teachers are ready to put integration into practice in the learning process.

The teachers were asked whether there are possibilities in craft to develop students' readiness for coping with new situations. In general, teachers' attitude towards integration is positive, and 72 % of respondents believe it is possible to develop coping in new situations with the help of craft.

Regarding the responses to this question, the rate of respondents answering: 'hard to say' (25 %) may cause anxiety as it could be concluded that a quarter of the teachers surveyed have no certainty that the knowledge and skills taught in craft are usable and applicable for students later in life.

To continue this theme, the study addressed whether, in teachers' opinions, justification of the veracity and validity of the knowledge given to students is necessary. For this question, almost all teachers who participated in the survey (97 %) responded affirmatively.

Teachers are thus confident that showing and proving the validity of previously discussed phenomena to students, through practical work, is useful to teaching. From this result, it may be concluded that teachers consider interdisciplinary integration to be a useful and necessary element of lessons.

Since the teachers try to justify knowledge, it is important to examine how they do it. The results of this question are shown in Figure 3, which shows that 69 % of teachers try to justify given knowledge based on both other subjects and logic, providing a chance to understand the phenomena in the most

appropriate manner for students. A little over a quarter (26 %) of teachers use logic in explaining teaching, i.e. they rely on overall life experience and common knowledge.

The responses to this question show that relying only on empirical knowledge is usually not enough while justifying the knowledge being taught and that, in different situations, knowledge of other areas is also necessary. A quarter of respondent craft teachers (the teachers that preferred logic) obviously do not feel competent in other areas and hence try to answer students' questions based on logic. This situation clearly indicates need to maintain and strengthen craft teachers' training the several or multi subjects' teachers system.

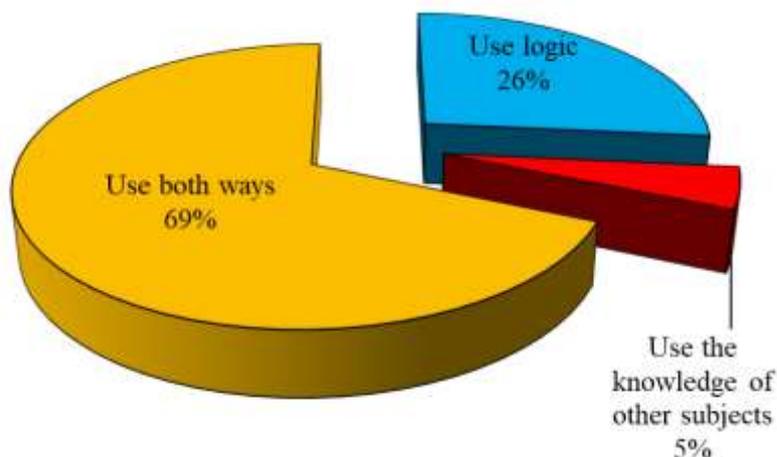


Figure 3. Bases of justification for knowledge given to students.

Finally, the teachers were asked to answer a free-form question: What benefit can justification of knowledge provide 77 % found that justification of knowledge influences students positively. Fifty three percent of the teachers saw an increase in students' independence and conscious activity in completing tasks as a benefit from integration, i.e. the students understand what they are dealing with and what they are doing.

Therefore, justification of knowledge may have a positive impact on students' motivation to do practical work and learn which an important prerequisite for successful integration is.

To identify the connection between the impact of knowledge justification and justification frequency, the correlation coefficient between two variables was found (Table 2). Since these were categorical (qualitative) variables, Spearman's  $\rho$  was used to characterise the strength of the correlation coefficient.

Table 2

**Spearman's correlation between knowledge justification impact and justification frequency**

Spearman's rho		Knowledge justification impact	Justification frequency
Knowledge justification impact	Correlation Coefficient	1,000	0,315**
	Sig. (2-tailed)	.	0,004
	N	83	83
Justification frequency	Correlation Coefficient	0,315**	1,000
	Sig. (2-tailed)	0,004	.
	N	83	83

\*\* . Correlation is significant at the 0.01 level (2-tailed).

The analysis revealed a moderately severe ( $\rho=0,315$ ) and statistically insignificant correlation coefficient ( $p=0,004$ ) between knowledge justification impact and justification frequency. On this basis, it can be argued that teachers who justify knowledge to students more frequently receive better results, and vice versa.

### *Teachers' cooperation*

As teachers' cooperation has a significant role in interdisciplinary integration, the bases upon which craft teachers cooperated with teachers of other subjects, and with whom, were studied. The survey showed that cooperation with other teachers is not a common practice; for example, 31 % of craft teachers have often cooperated and 59 % of craft teachers have rarely cooperated with teachers of other subjects. Craft teachers have worked with math and physics teachers the most (55 %). The answers to the free response questions point out that subjects' separateness, lack of resources and large workload were the main reasons for insufficient cooperation. At the same time, teachers consider cooperation to be useful and beneficial for students (75 %). Teachers who cooperate with teachers of other subjects find that the students know cross-subject relationships in practical situations better and the students are convinced of the validity of another subjects' knowledge (46 %). When asked whether they are cooperative, seventy one percent of craft teachers responded that they are cooperative and open-minded and are ready to perform different forms of cooperation with other teachers. Craft teachers initiate 84 % of cooperation.

The analysis of the study results of the study shows that Estonian teachers feel overloaded; lack resources and subjects are separated in schools. Similar problems are also described by J. Braunger and S. Hart-Landsberg (1994), who note that teachers implementing integrated education need help to overcome the inertness of acting alone. Other researchers have addressed support for interdisciplinary integration, such as H.H. Jacobs (1991) in his recommendations for effective application of integration and S.M. Drake (1993) in discussion of teachers' misconceptions about integration.

### **Conclusions**

Estonian craft teachers recognise the importance of students' coping in domestic and technical fields, but do not connect it enough with students' mental readiness. Such an attitude is demonstrated by the prevailing composition of learning tasks based on exemplary works and work instructions. Knowledge integration, however, requires students to develop a new kind of activity readiness compared to common craft. A large number of Estonian craft teachers believe it is possible to ensure such readiness of students in craft, but discussion of how to achieve integration does not necessarily lead to a successful implementation. This fact highlights the need for improvement of teachers' basic and vocational training in the field of didactics. In doing so, it is worth paying attention to the fact that the goal cannot be integration for integration but is instead a tool for raising a person who is capable of integration. Therefore, operational readiness does not lie in learning to solve a few individual implementation tasks, but in developing the attitude and readiness to cope with different situations that may arise.

While Estonian craft teachers consider the teaching of coping with everyday life situations to students to be important since it is also required by current craft didactics, in doing so, the teachers use many traditional, teacher-centred techniques in which the teacher gives students clear guidance and comprehensive instructions to prepare works based on work instructions or models. Teacher-centred craft, common in Estonia, has also left a negative imprint on students' learning motivation, which may cause difficulties in transferring knowledge, as found in the present study. Current craft has, however, moved from preparing similar works towards a craft design process where all students have an individual relationship with their original work. Through the work personified in this way, it becomes possible to achieve both higher learning motivation and a multi-step self-reflection to evaluate decisions adopted by students. Personalised work and specific situations in the work process that need to be solved are a great opportunity to elicit students' internal integration and to transfer knowledge.

Cooperation between craft and science teachers is not an everyday occurrence. Most cooperation has been done with math and physics teachers, the benefit of which is seen by craft teachers in students' awareness of cross-subject relationships. Craft teachers are generally cooperative and open-minded teachers and they are ready to perform different forms of cooperation with teachers of other subjects for which, however, they need the school's organisational support.

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## Handicraft in the Context of Sustainable Education

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**Abstract:** Each century brings something new and unprecedented to the characterization of the era. It has its own values and the view of the world. The 21st century is characterized by rapid changes in economics, politics, and the development of different technologies. The young person comes into the social environment with other interests and desires, with high demands, with activity and competitiveness. Human values are changing as well. It is a challenge for education, its product, for the education of a new person, for sustainable thinking and action. The public opinion is turned to the sustainable development of the society. There is much debate about the education for sustainable development. The competences and learning habits acquired at school are essential for developing new skills for new jobs later in life. The change of paradigm in education also involves the change of teachers' and students' competences. The development of an up-to-date educational content and approach takes place in Latvia, too. Home Economics and technologies is one of the subjects at school, where education for sustainable development is carried out. Home economics and technologies deals with various topics related to sustainable development. One of those topics is „Handicraft”. The teaching and learning process in handicraft lessons is being looked through the point of view of education for sustainable development. Handicraft as a handmade product is a popular household object. Handicraft is acquiring another value compared to industrially made mass production goods. The aim of the research is to determine the students' attitude towards handicraft. The research methods such as questionnaires and discussions were used in the current investigation. The place of the research: Jelgava, Latvia. Altogether 255 respondents take part in this investigation. Results show a variety of respondents' groups. The obtained results reveal that respondents mainly like to wear, use handicraft products, that handicraft is respected in families. The results of the questionnaire convincingly show that the theme Handicraft must be included in the curriculum. It is shown by the majority of the respondents from all the groups.

**Keywords:** handicraft, home economics and technologies, sustainable education, school education.

### Introduction

The changes in one sphere of life carry along some changes in other spheres. The prosperity of the national economics promotes the human personality growth opportunities, the broadening of his/her comfort zone that provides an ascending quality of life. The human being is the one who stands close by the challenges of nature and technologies. It is a challenge for him/her as for the most developed living being on the Earth. Being together with nature, taking care of it and profiting from it at the same time. Human values are changing as well. The public opinion is turned to the sustainable development of the society.

The basic idea of sustainable development invites to satisfy the needs of the present generation, balancing public welfare and environmental and economic development interests and concurrently ensuring the observation of the environmental requirements and the preservation of natural diversity in order to avoid the reduction of possibilities to satisfy the needs of future generations, indicated in document Sustainable Development Strategy of Latvia until 2030 (Sustainable Development Strategy..., 2010).

We live in a rapidly changing and increasingly interdependent world where knowledge and innovation are major drivers of development. This means good quality education and learning are becoming even more important determinants of the well-being of individuals, the progress of countries and the quality of humanity's common future (UNESCO, 2014). The main strategic principles can essentially increase the opportunities of the sustainable development of Latvia and they are defined considering the global tendencies and evaluating the resources of Latvia and its utilization. These are:

- creative work;
- tolerance;
- co-operation;
- participation (Sustainable Development Strategy..., 2010).

The report of the Commission of the European Communities indicates that the European Council has repeatedly drawn attention to the key role of education and training for the future growth and long-term competitiveness of the Union. It is important to achieve this to fully develop the potential for innovation and creativity of European citizens, and this should be strengthened at an early age – at schools. The competences and learning habits acquired at school are essential for developing new skills for new jobs later in life (Commission of the European..., 2008).

The change of paradigm in education also involves the change of teachers' and students' competences. An Agenda for European Cooperation on Schools indicate 3 areas improving competences for the 21st century:

- focus on competences;
- high quality learning for every student;
- teachers and school staff (Commission of the European..., 2008).

During the period covered by this strategy, the education sector as a whole will need to respond to increasingly complex, rapid and often unpredictable developments beyond the sector itself (UNESCO, 2014). Change of paradigm in education, providing for closer link of educational system with economic and public processes, also change the nature of work of teachers. A teacher should be not only the teacher of his or her study subject, but also a diverse, talented personality who helps, inspires, joins different fields, co-operates, gives advices and organises (Sustainable Development Strategy..., 2010).

To acquire competences, learners need, from an early age, to 'learn to learn' by reflecting critically on their learning aims, managing their learning with self-discipline, working autonomously and collaboratively, seeking information and support when necessary, and using all the opportunities of new Technologies (Commission of the European..., 2008).

Based on the above-mentioned documents, the development of an up-to-date educational content and approach takes place in Latvia too. It is necessary to improve the basic skill acquisition of children and adolescents in significant spheres of human activity. „Nowadays children need to learn to live in the world that is continuously changing, and they must be ready to create a so far unknown economic, politic, social and cultural environment”, pointed out in „Education for modern competence: the description of approach for education content” (Skola 2030, 2017, 5).

The aim of the improved education content and approach is a competent pupil who wants to learn and is able to learn all life long, who can solve real life challenges, create innovations, acquire different personality traits that help him/her develop into a happy and responsible person. The foundation of the new content is based on the basic principles: succession, regularity and integrity. Whereas the education content is formed by virtue, transversal skills, understanding and basic skills (Skola 2030, 2017). To provide a modern education for each pupil it is significant to improve the approach for education within the curriculum, strengthening the shift of accents from giving students complete knowledge to guiding their learning process where they learn in depth. The teacher:

- puts forward clear and meaningful achievable results;
- offers multiform, complex, personally important tasks in the learning process that give a chance to create an actual understanding, to connect things learned in the process, that stimulates to choose the most suitable problem-solving methods;
- provides suitable support and regular feedback during the learning process;
- encourages students to reflect their learning and thinking (Skola 2030, 2017).

Home *Economics and technologies* is one of the subjects at school, where education for sustainable development is carried out. It is included in the general education curriculum.

It has ancient and constant traditions. That is confirmed by curriculum analysis and research. The aims and content of the subject have changed according to the development of economics and politics, as well as to the public opinion, traditions and everyday life.

Throughout the centuries, *Home economics and technologies* has proved its significance in the increasing the human life quality. Today the students' understanding about the safety and quality conditions of the human living environment, the ability to creatively involve and solve problems in sustainable development is emphasized in Home Economics (Lice, 2012). However, the human and his/her practical work was always in the centre. In the course of time also the name has changed – Handicraft, Practical Work, Home Economics, Household, Work Training. The changes in education

paradigms have affected this subject as well (Lice, 2003; Lice, 2012). Pupil's creative activity comes in the foreground. The development of the subject in Latvia is very similar to the development of the subject in Estonia (Taar, 2015).

Home economics and technologies deals with various topics related to sustainable development (Lice, Reihmane, 2015). One of those topics is „Handicraft”, that students learn from the first class. It is extensive, including item making from different materials, for example paper, carton, yarn, cloth, and technologies, for example gluing, folding, embroidery, braiding. Analysing the creative activity in Home economics and technologies of younger students, scientist E. Volane points out that younger students' creative activity is the creativity that is an original creation of the craft, which is a new approach in task solution in the process of knowledge and skills acquisition, in combining the methods of known activity (Volane, 2016). Starting the fifth form students choose the learning type of technology – textile technology or wood and metal technologies. They deepen their knowledge and improve their skills.

The teaching and learning process in handicraft lessons is being looked through the point of view of education for sustainable development. For example, the acquiring of different materials used in handicraft, rational usage of the materials, suitable technology accommodation for the design, secondary use of cuttings, leftover recycling, ecologic collection of unnecessary leftovers.

During handicraft lessons students make some kind of goods, obtaining skills and abilities in the performance of technologies, usage of materials, creation of design. An active cognitive process, mutual discussions, observations, experiments and comparison take place. Students work communicating with others and individually at the same time. That is why learning in Handicraft is organized in small groups. Describing teaching scientists K. Exley and R. Dennick (2004) point out that in a small group student can be encouraged to talk, think and share much more readily than in a large group. Communication is at the heart of small group teaching of any kind a crucial first step is the willingness of the students to speak to each other and to work together, improving one's individual good.

Presentation of pupil's individual work or group work as a learning method is popular in handicraft lessons. Scientist K. Egan (2010) stresses out that the presentation is an opportunity for students to share the results of their work and receive feedback on it from their peers and from others.

Purposefully organizing and managing a handicraft lesson, students obtain all the transversal skills emphasized by School 2030. Those are – self-examination and self-management, thinking and creativity, co-operation and participation, digital skills (Skola 2030, 2017, 8). Each pupil has a chance to learn handicraft more qualitatively with transversal skills from different education spheres. Whereas learning the specific features of handicraft, a pupil transfers his/her knowledge, obtained skills and learning methods to contexts of other subjects using transversal skills, in this way strengthening the bond between newly acquired knowledge and his/her personal experience and obtained skills.

Thus H. Janhonen-Abuquah, H. Posti-Ahokas and P. Palojoki (2017) indicate that all teachers should see the power of interdisciplinary cooperation, and Home Economics and technologies as a school subject (Handicraft as part in Home Economics and technologies) provides an excellent platform for this. Teachers are the main element in this process, which means that they must share information, negotiate, and be truly present in helping, designing, and enabling the implementation of good interdisciplinary practice.

Handicraft as a handmade product is a popular household object. Component parts of clothing and household object are made using different technologies. It is a laborious process which requires time, accuracy, knowledge. Today industrially made items outdo handicraft. The functions of handicraft have change during time. Once it was necessary for daily life. Nowadays an item made by handicraft is a special decorative product. Handicraft is acquiring another value compared to industrially made mass production goods.

Considering the change of education paradigm and new visions for education nowadays, deeper research of education content, its compliance with today's life, and the new person's career promotion is done. One of the researches is the research analysed in the article about handicraft. The aim of the research is to determine the students' attitude towards handicraft.

## Methodology

The scientific research was carried out in Jelgava (Latvia) during 2017. Students from four schools: Elementary School No.3, Elementary School No.4; State Gymnasium and Jelgava Spidola Gymnasium, took part in this investigation. Two hundred and fifty-five (255) respondents from classes 5 to 12 (aged 11-18) were invited to participate in this research. Three groups were formed according to the participant age. The first group A – respondents from classes 5 to 6 (105 participants); the second group B – classes 7 to 9 (90 participants); the third group C – classes 10 to 12 (60 participants). The research was carried out within lessons of Home Economics and Technologies (textile part). The research methods such as questionnaires and discussions were used in the current investigation. Each respondent group was analysed separately. The data was processed using the statistical data processing program SPSS for statistical analysis. The results have been summarized and the relevant ones are presented graphically using calculations of percentage.

Five questions connected with handicraft were included in the questionnaire revealing the students' attitude towards handicraft. Students chose one of the four given scales: yes; rather yes than no; rather no than yes; no. The question of the research – are there any differences in the attitude towards handicraft in different age groups.

## Results and Discussion

The carried-out questionnaire about handicraft, discussions with students and the author's pedagogical experience helped to discover students' attitude towards handicraft. The results of the questionnaire show differences between respondent groups.

In everyday life handicraft products can be used differently: as components of clothing (e.g. gloves, socks, scarves, hats, cardigans, jumpers), as household objects (e.g. blankets, towels), as design objects (e.g. wall decorations, covers). The results of the questionnaire show (Figure 1) that respondents of group C (classes 10 to 12) mainly *like* to wear, use handicraft products (40%), where as 34% of the respondents from group B (classes 7 to 8) and 27% of the respondents from group A (classes 5 to 6).

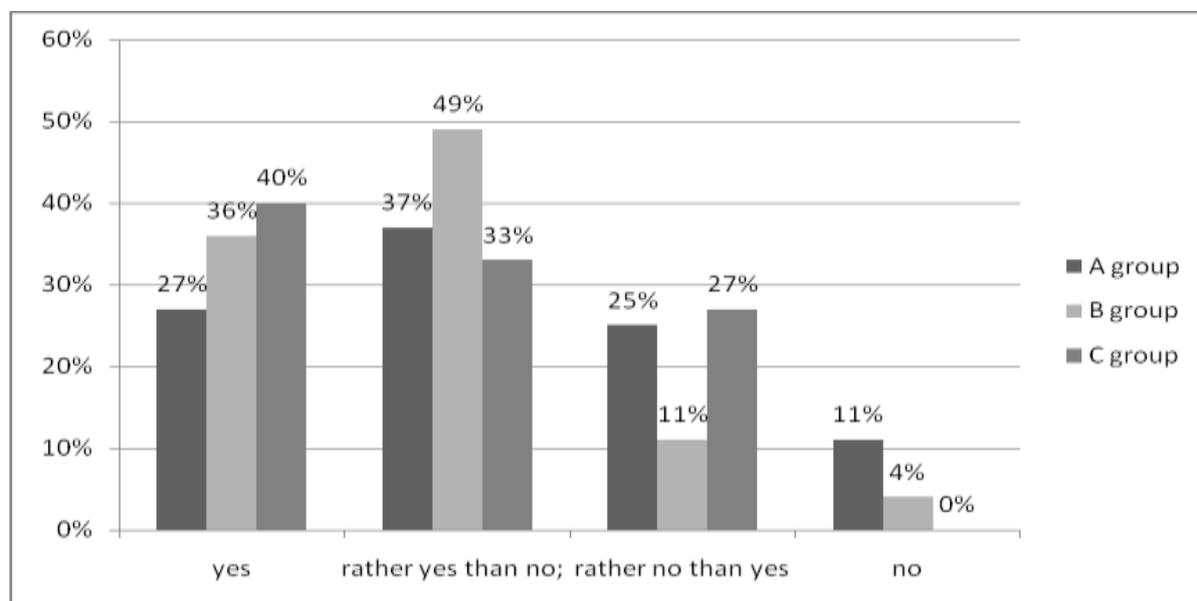


Figure 1. Handicraft product usage in everyday life.

Thirty three percent of the respondents from group C (classes 10 to 12), 49% of respondents from group B (classes 7 to 8) and 37% of the respondents from group A (classes 5 to 6) have indicated *rather like than not like*. Twenty seven percent of the respondents from group C, 11% from group B and 25% from group A have indicated *rather not like than like*. The author of the article is delighted that only 4% of the respondents from group B and 11% from group A *don't like* to use handicraft products.

Handicraft is a widely popular leisure activity for teenagers and adults. Students also like to make handicraft in their free time. But during Home Economics and technologies lessons all students make

handicraft. They learn basic elements and use them in the making of a small work. The results of the questionnaire show (Figure 2) that the most of all respondents from group A (49 %) *like* to make handicraft goods within the lesson. Nearly a half less – 20 % of the respondents from group B *like* to do it, but as for respondents from group C – 33 %. Most of the respondents (34 %) from group A *rather like than not like* making by themselves, as for 25 % of the respondents from group B and 27 % from group C. Eleven percent of the respondents from group A, 33 % from group B and 23 % from group C have indicated that they *rather not like than like*. Six percent of the respondents from group A, 22 % from group B and 17 % from group C *don't like* making handicraft goods by themselves.

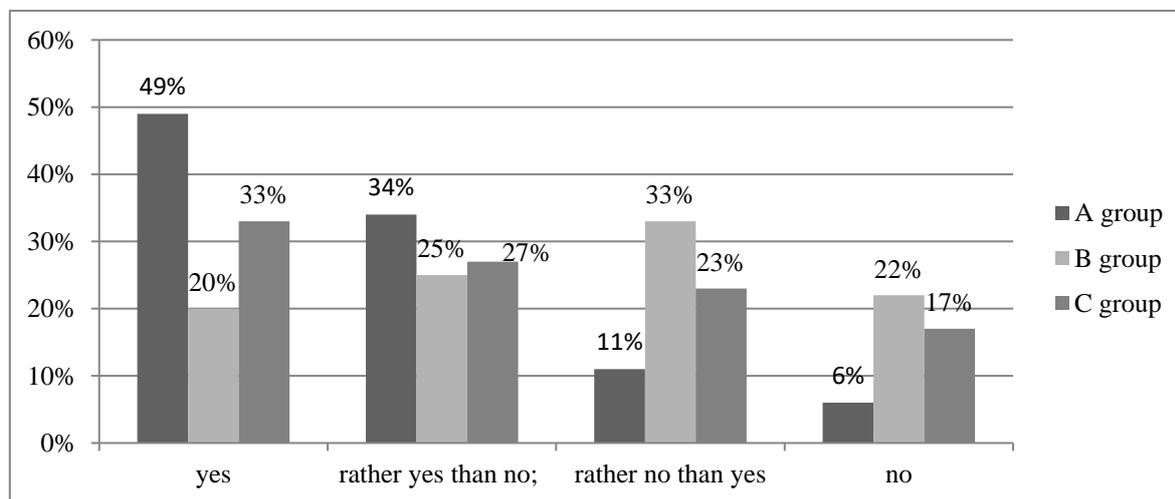


Figure 2. Delight of making handicraft goods.

Overall, it could be concluded that the respondents from all the groups *rather like than not like* doing handicraft. Eighty three percent of the respondents from group A, 45 % from group B and 60 % from group C have positive answers. It indicates that students *like* doing handicraft. The respondents from group B like doing handicraft the least – 22 % have answered definitely *no*. The respondents from group A like doing handicrafts the most – only 6 % *do not* like it.

Family is the first environment where a child learns life skills, feels love, respect and accepts values. Handicraft as hand work is a value. There are people to whom it means a lot. Families respect national traditions, praise the doer's honour, teach respect to work.

The questionnaire results show (Figure 3) that handicraft is respected in families.

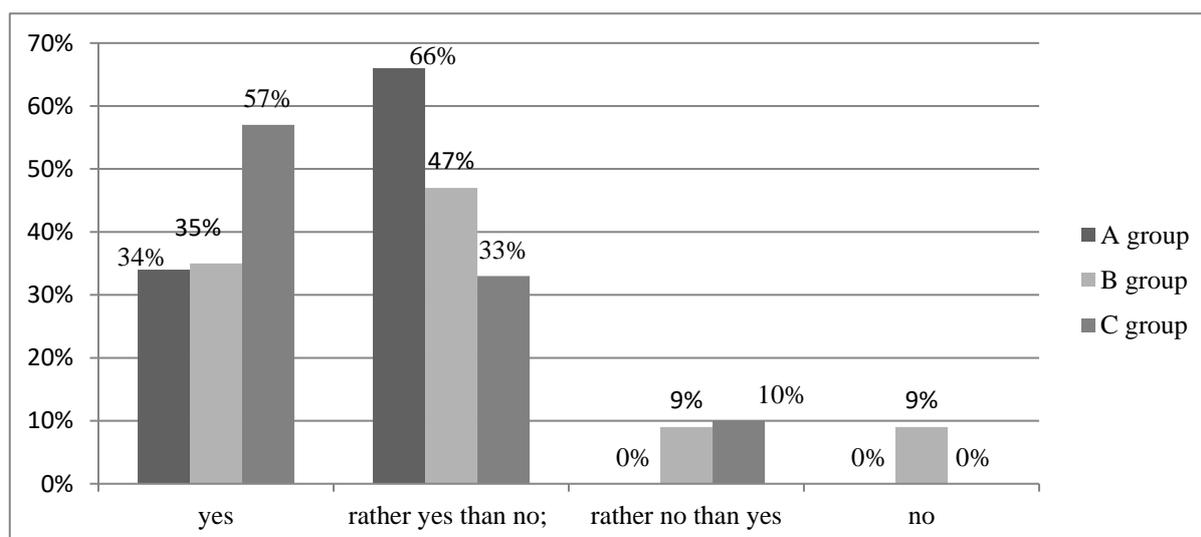


Figure 3. The attitude towards handicraft in a family.

The families of respondents of group C *highly respect* handicraft (57 %), *respect handicraft* (33 %). The families of respondents of group B *highly respect* handicraft (35 %), *respect handicraft* (47 %). The families of respondents of group A *highly respect* handicraft (34 %) and *respect handicraft* (66 %).

Only 9 % of respondents from group B have indicated that they are not interested in handicraft at all, but 9 % from group B and 10 % from group C are indifferent to it.

The results of the questionnaire show (Figure 4) that according to the self-evaluation the highest evaluation – highly respect – were given by 43 % of the respondents from group C, 31 % from group A, and 25 % from group B. Fifty three percent of the respondents from group B, 52 % from group A, and 43 % from group C have chosen the answer respect. Seventeen percent of the respondents from group A, 13 % from group B and 9 % from group C have chosen the answer indifferent. It can be concluded that the majority of the respondents have pointed out that they highly respect or respect handicraft.

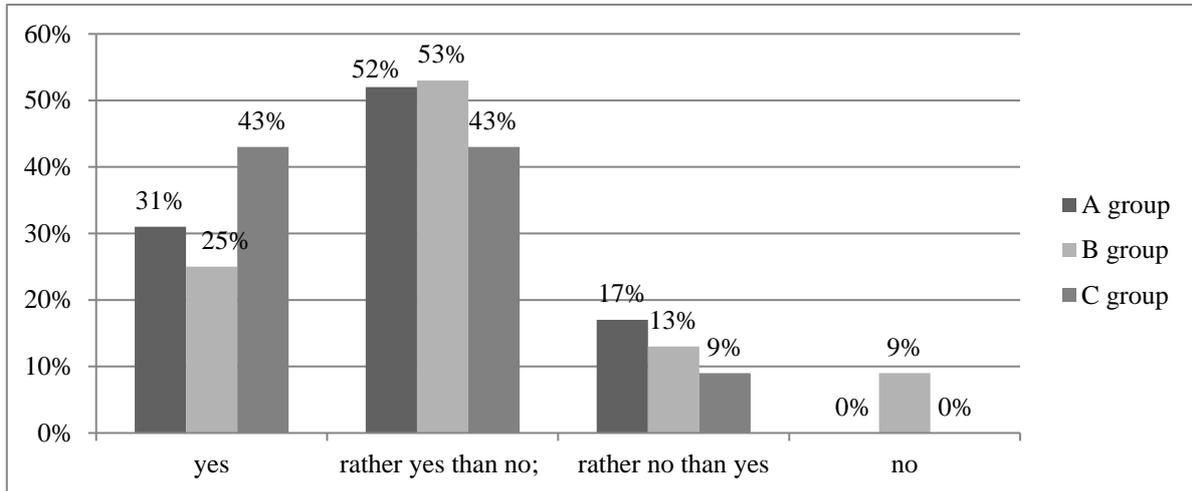


Figure 4. Self-evaluation of handicraft.

The most important is that teaching at school is deliberate and systematic and it is not regulated by students' interests but by curriculum worked out by experts not personally acquainted with teachers. As a result, the subjects taught at school are often not connected with the children's interests in the learning process, and possibilities which should be provided at school are not used (Wells, 2004).

Handicraft is one of the themes that are included in contemporary content of the Home Economics and technologies curriculum. The question about including handicraft theme in the comprehensive school is actual nowadays from different points of view. That is why the pupil's thoughts about including handicraft in the curriculum are important.

The results of the questionnaire convincingly show (Figure 5) that the theme Handicraft must be included in the curriculum.

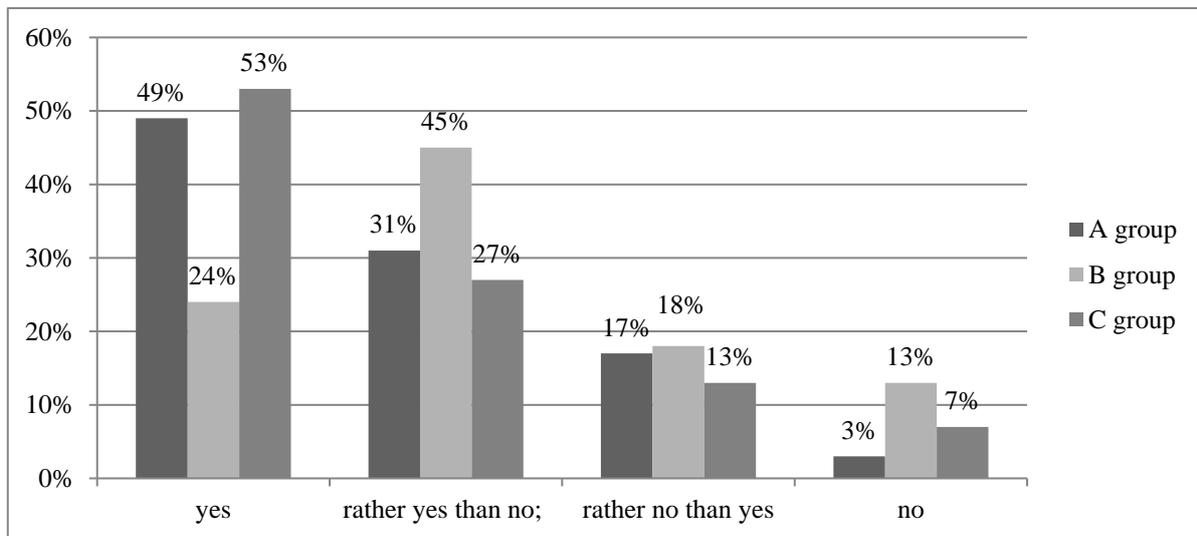


Figure 5. Handicrafts as the theme in the Home Economics and technologies.

It is shown by the majority of the respondents from all the groups. Overall it is mostly accentuated by the respondents from groups A and C (80 %, of which group A – *yes* 49 %, *rather yes than no* 31 %; group C – *yes* 53 %, *rather yes than no* 27 %). The respondents from group B 69 % (accordingly 24 % and 45 %).

Most B group respondents – thirty one percent (*no* 13 %, *rather no than yes* 18 %) are against the including of handicraft in the curriculum. The respondents from group A (20 %) and group C (20 %) are also against it (accordingly group A – *no* 3 %, *rather no than yes* 17 %; group C – *no* 7 %, *rather no than yes* 13 %).

The author is surprised about such results. The author during her multiannual professional career and teaching practice has observed that students learn handicraft technologies with more and more difficulties. Discussions with the students show their wish to learn the techniques, to make not complicated but simple works.

## Conclusions

- The change of paradigm in education also involves change of values. The changes in education paradigms have affected also subject Home Economics and technologies. One of those topics is „Handicraft”. The teaching and learning process in Handicraft lessons is being looked through the point of view of education for sustainable development.
- There are differences in the attitude towards handicraft in different age groups. The respondents from all the groups rather like than not like using handicraft. Sixty four percent 64 % of the respondents from group A, 73 % from group C and 85 % from group B have positive answers. It indicates that pupils like using handicraft.
- The respondents from all the groups rather like than not like doing handicraft. 83 % of the respondents from group A, 45 % from group B and 60 % from group C have positive answers. It indicates that pupils like doing handicraft. The respondents from group B like doing handicraft the least – 22 % have answered definitely no. The respondents from group A like doing handicrafts the most – only 6 % do not like it.
- Handicraft is highly respected and respected in families. It was pointed out by 100 % of respondents from group A, eighty two percent (35 %+47 %) from group B and 90 % from group C. Only 18 % of the respondents from group B and 10 % from group C are indifferent and not interested at all in handicraft.
- The majority of the respondents have pointed out that they highly respect or respect handicraft. The results of the questionnaire convincingly show that the theme Handicraft must be included in the curriculum. It is shown by the majority of the respondents from all the groups. Overall it is mostly accentuated by the respondents from groups A and C (80 %).
- Discussions with the students show their wish to learn the techniques, to make not complicated but simple works. The students could also see generation traditions and values through handicraft. They also evaluated the moral aspect obtained from handicraft

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## Lesson Study Matters in Ireland

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**Abstract:** Lesson Study is an approach to improving classroom teaching that focuses on collaborative professional learning between teachers. This paper reports on Lesson Study developments in Ireland, its use in two schools, one in Northern Ireland and one in the Republic of Ireland, and in particular its use in Home Economics education. The aim of the project was to assess the potential for Lesson Study to improve classroom pedagogy in selected areas of the schools' provision. The schools identified three challenging aspects for study: improvement of literacy levels, use of Assessment for learning-type pedagogy and use of innovative teaching methods to enhance learning in Home Economics. The teachers considered that the Lesson Study approach contributed to improved pedagogy and student outcomes in their chosen areas. This was accomplished through collaborative professional learning, meaningful dialogue between the teachers about pedagogy and student learning, deeper levels of reflection by the teachers and profound changes in the teachers' understanding and learning about practice.

**Keywords:** Lesson Study, professional learning, life-long learning, adult education.

### Introduction

The context for teaching today is dynamic and evolving and the accelerated pace of societal change, legislative and educational reform requires that teachers are prepared for life-long learning as they face a range of new challenges and opportunities in the classroom. Within this arena, Lesson Study has emerged as an innovative alternative to conventional methods of promoting professional learning. This paper reports on how two schools successfully implemented and evaluated Lesson Study in aspects of their teaching. The study aimed to determine the effectiveness of Lesson Study as a school based and peer-to-peer approach to teacher professional development.

The most common form of lifelong learning in the professions is continuing professional development (CPD), described by C. Day and J. Sachs in the context of teaching as "a term used to describe all the activities in which teachers engage during the course of a career, which are designed to enhance their work" (Day, Sachs, 2004, 3). The OECD Teaching and Learning International Survey (TALIS) report broadly defines professional development as 'activities that aim to advance teachers' skills and knowledge, with the ultimate aim of improving their teaching practice' (OECD, 2014, 87). There are, of course, different modes of professional development and D. Galanouli (2010) has reviewed these. The author argues that the key features of successful professional development include engaging the teachers in collaborative enquiry, ensuring the support of school leaders and involving all stakeholders in the process. She identifies the teachers' active involvement in their own professional development as a key to success.

There is widespread recognition amongst schools' senior management teams of the fact that the spirit of Lesson Study is contrary to the usual top-down model of professional development. S. Mitchell considers that this latter model can often result in "professional indigestion" (Gardner et al., 2012, 20), where ideas and concepts are communicated, but with little time for absorption, consolidation, or application. M. Dadds (1997) explains that a delivery model of CPD does not take cognisance of the "complexity of processes which teachers undergo as they continue to learn about their professional craft; as they continue to gain new knowledge and understanding; reconstruct their attitudes, beliefs, practices; struggle with the difficulties of the change process" (Dadds, 1997, 32). Many, in her view, "come with a convincing feeling that what is inside them is not valid because it is "only personal" to them. Somewhere along the line ... they have learnt to seek the "expert" outside but deny that there may be a potential "expert" within" (Dadds, 1997, 33). She argues that teachers do not enter into their professional development as 'empty vessels' as they bring with them varying levels of experience and expertise, preconceptions and beliefs about teaching and learning and insights, all of which are "useful resources which can be drawn upon and studied in CPD processes" (Dadds, 1997, 32).

Teachers' professional development is not only a concern of teachers and schools. A recent European Commission working document on *Competences for the 21<sup>st</sup> Century: An Agenda for European Cooperation on Schools* (Commission of the European..., 2008), has presented empirical evidence of

stakeholders' views regarding present and future school education. Some major trends emerged from the consultation and one aspect related to teachers' professional development. The report emphasizes the importance of presenting teaching as "a problem-solving or research-in-action activity during which teaching methods and strategies, formal or informal, are examined in relation to the children's learning" (Commission of the European..., 2008, 5). The need to improve the quality of in-service training is recognised in addition to the need to provide resources and time for such practice. One aim of the OECD TALIS research studies was to determine the level and quality of professional development amongst lower secondary teachers in 24 countries including Ireland during the period 2007-2008 (OECD, 2009) and in 34 countries during 2012-2013 (OECD, 2014), not including Ireland in this case. The reports conclude that better support for teachers was required, for example, professional development opportunities, incentives for participation and scheduled time for professional development activities during the school day. Whilst participation in teacher professional development in Ireland was ranked as average in the 2009 report, it is interesting to note that the intensity of participation was ranked as low in comparison to other countries (OECD, 2014, 54). Although not covered in the 2014 report, this situation is unlikely to have changed significantly in Ireland given that there has been no major initiative to address the issue since 2009.

A second analysis of the OECD (OECD, 2009) report was published in *Teachers' Professional Development: Europe in international comparison* (Scheerens, 2010). The report emphasises two dimensions of professional development. The first focuses on the development of thoughtful reflection on teachers' everyday practice and the second on the improvement of teacher quality and the enhancement of student achievement. The report supports the integration of professional development in everyday practice and asserts that research evidence on teacher effectiveness "underlines the importance of overall teaching quality as a lever for improving student achievement" (Scheerens, 2010, 190). Teachers' roles in secondary processes of research, innovation and leadership are promoted as part of the modernisation of the teaching profession. This view is further consolidated in the 2012 European Commission Report *Education: Policy Support for Teacher Educators* which argues that "in a context of increasing professionalisation, teachers have a responsibility to extend the boundaries of professional knowledge through a commitment to reflective practice, research, and systematic engagement in professional learning throughout their careers" (European Commission, 2012, 1).

The Teaching Council of Ireland (Policy on the Continuum..., 2011) argues that effective professional development should enable teachers to develop their capacity to evaluate pedagogical beliefs and practices, to engage in critical reflection and professional collaboration. D. Galanouli (2010) describes Lesson Study as offering these types of activity, judging it to be a true bottom-up model of professional development where teachers are directly involved in the design, planning and implementation of the professional development activity. J. Stigler and J. Hiebert summed up the essential driver for lesson study initiatives when they wrote that 'if you want to improve teaching, the most effective place to do so is in the context of the classroom' (Stigler, Hiebert, 1999, 111).

### **What is Lesson Study?**

Lesson Study is a form of teacher professional development and professional learning involving pedagogic improvement brought about by collaborative cycles of lesson design, implementation and review. Lesson Study is associated with the involvement of teams of teachers in collaborative research on classroom lessons in vivo. Interestingly, the term 'research lesson' is frequently used in the literature (Lewis, Perry, Murata, 2006; Lewis, 2009) to indicate the application of a research approach to classroom lessons. The key stages of identifying the focus for a lesson study, planning its development, implementing the plan and evaluating the lesson feature in many models of Lesson Study. These are represented schematically in Figure 1.

In a typical example of a Lesson Study cycle as set out in stage 1 of Figure 1, *Identification*, a group of teachers form a 'learning community' to examine and identify a challenging area of teaching. This process is central to Lesson Study as it initiates the central plank of the approach: a collegial identification of a shared practice that may previously have been something each teacher tackled unilaterally. It features in all models of Lesson Study including, for example, C.C. Lewis, R. Perry and A. Murata's four stage model (Lewis, Perry, Murata, 2006), in which they describe an initial process of studying the curriculum and formulating a goal. Examples of the focus for lessons might include challenges around such topics as the

development of problem solving and creativity. Lesson Study specifically tries to ensure that students have an input and the roles they will play are identified. Most importantly, this first stage identifies the ground rules for proceeding, for example in establishing a working environment characterised by trust, respect, confidentiality, freedom to take risks and constructive criticism.

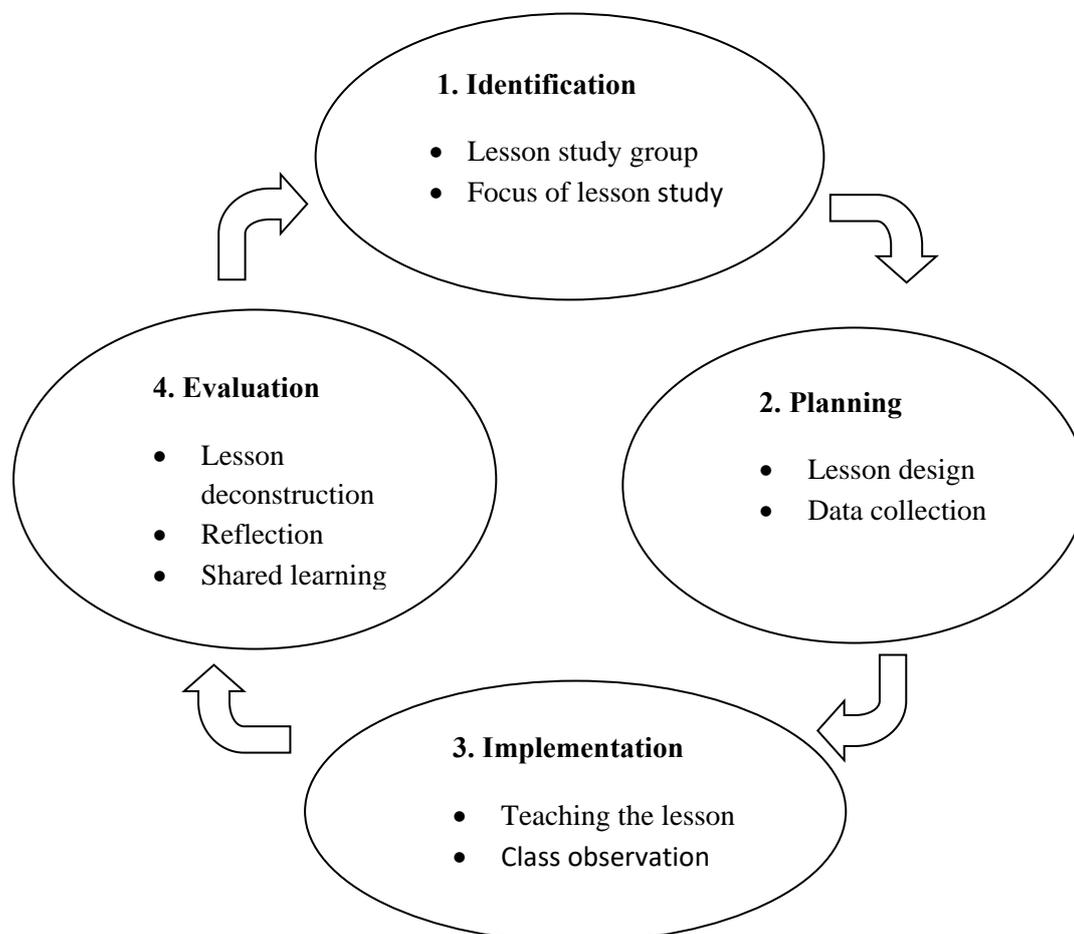


Figure 1. The Lesson Study Cycle.

In stage 2, *Planning*, the group of teachers then collaborate on the planning and design of a lesson that intends to address the student learning challenges through new approaches to the teaching and the engagement of a student viewpoint. In stage 3, *Implementation*, the lesson is taught (effectively trialled) by one teacher while the others observe and collect data for later analysis, including, for example, the reactions of students to the teaching. In stage 4, *Evaluation*, the group meet after the lesson to discuss how the lesson achieved or did not achieve the desired learning outcomes for the students. In a form of an action research cycle, the findings are used to improve the lesson for subsequent delivery by another member of the group and the reflective cycle of plan, implement and refine is repeated as often as is necessary (or possible) with the aim of having a demonstrably effective lesson for the identified challenge. One lesson does not, of course, solve every teaching challenge and the process of reflection must be in-depth. A typical team may therefore engage in only two or three cycles on specific issues over the course of an academic year, but the aim remains the same whatever the duration, i.e. to provide the means of addressing difficult challenges over time through collegial effort.

The ideal outcome from Lesson Study approaches is that the processes of collaboration, observation and sharing of experiences on identified *teaching* challenges becomes second nature as each teacher, or group of teachers, and ultimately the whole school, adopt the philosophy of shared planning and experimentation. Its key features are: experimenting with teaching techniques, development of shared knowledge and experience about what works (and does not work), valuing students' inputs to the lesson design processes and self and collective reflection.

## Lesson Study Legacy

Lesson Study has a long-documented history in Japan as a method of teacher professional development and the term 'Lesson Study' is in fact a literal translation of the Japanese word 'Jugyokenkyu' (Fernandez, 2002). C.C. Lewis (2010) reports that in Japan, practitioners and researchers engage in collaborative Lesson Study firstly at a local level (perhaps in a school, or within a cluster of schools) and these 'research lessons' may then be provided either in publically accessible live or video captured sessions, which contribute to the wider sharing of standards. The author argues that much of the knowledge for teaching is embodied in the instruction itself and is spread and refined as teachers watch each other teach rather than through the medium of written documents. These public lessons, which may be live in conference settings, or recorded and streamed for wider consumption, spark purposeful conversations about learning among practitioners, researchers and policy makers. The practice is gathering pace in other countries and, for example in the United Kingdom context, empirical evidence from D. Burghes and D. Robinson (2009) and P. Dudley (2008) strongly points to the effectiveness of Lesson Study in contributing to school improvement. The method has been adopted across all content areas and most notably in Mathematics and Science. Lesson Study has been associated with the improvement of classroom pedagogy and the professional development of teachers by such writers as J.W. Stigler and J. Hiebert (1999), who linked the 1999 Trends in International Mathematics and Science Study (TIMSS) success in Mathematics in Japanese schools to the regular and long-term use of Lesson Study by Japanese teachers. A variety of writers such as C. Fernandez and M. Yoshida (2004), W. Cerbin and B. Kopp (2006), C.C. Lewis, R. Perry and A. Murata (2006) and C.C. Lewis (2009) have added to the research base, mostly in the area of Mathematics education in the United States with strong endorsement of the inherent capacity of Lesson Study to enhance classroom pedagogy and student learning.

Lesson Study has been included in initial teacher education Mathematics programmes at primary and post-primary level and introduced at school-based level in the RoI in recent years (Brosnan, 2007; Corcoran, 2007; Corcoran, Pepperell, 2011; Leavy, Hourigan, 2016; Ni Shuilleabhain, 2016). The increased use of Lesson Study in the specific context of Mathematics began in a wide range of Irish post-primary schools with the launch of a revised Mathematics curriculum entitled 'Project Maths' in 2008 (DES, 2010). This programme aims to enhance students' learning experience, achievement, and understanding and application of mathematical concepts. A recent comparative educational study by A. Ni Shuilleabhain and S. Clivaz (2017) focused on the role of Lesson Study in the explication and development of teacher knowledge. Lesson Study in a Home Economics educational context is becoming more familiar and used. N. Kishi, N. Arai and other Japanese scientists (Kishi et al., 2017) evaluated different types of Lesson Study in Home Economics education. The important role of national and local organisations in the development of Lesson Study research and professional training for teachers was acknowledged in their study. Long-term collaborations are developed which in turn provide opportunities for "spiral research studies" (Kishi et al., 2017, 96). Outside of Mathematics, the study reported here is one of a very small number on Lesson Study in Ireland and in particular on Lesson Study in Home Economics education.

## Methodology

The project aimed to determine the effectiveness of Lesson Study as a school based and peer-to-peer approach to teacher professional development. Two second-level schools, one located in Northern Ireland (NI) and the other located in the Republic of Ireland (RoI), took part in the study. Stage 1 of the Lesson Study cycle, Identification, (Figure 1) involved the researchers and schools in identifying the teams in each school and the area of practice to be studied. Two groups of three teachers (n=6) in the NI school chose the use of Assessment for Learning-type pedagogy (in Drama, History and Sociology), and literacy development (in Science, English and Geography) respectively, whilst one group of three teachers in the RoI school (n=3) chose a focus on helping students to grasp difficult aspects of microbiology in the Home Economics curriculum. The NI school groups worked 'vertically' with classes in years 8-11 (11-13 years) and the RoI school worked 'horizontally' across final year Home Economics classes (17-18 years).

The second stage of the Lesson Study cycle, Planning, involved the groups in formulating their 'research lesson' plans. The research team also used this phase to familiarise the teachers with the various data

collection methods and instruments such as specially formulated templates for recording student reactions to the teaching and a record of the teachers' observations to guide post-lesson dialogue. During this phase, the main data collection processes were designed, including protocols for involving student observers (students who would comment on the lesson afterwards) and for identifying students who were known to have difficulties in the matters being taught. The reaction of these students formed one focus for the observing teachers in gathering data. Teaching the research lesson formed the third stage of the cycle, the Implementation, and involved live observation and recording of data by the research team. This was followed by a comprehensive evaluation (stage 4) involving lesson deconstruction, reflection and sharing of learning that informed the improvement of the lesson for future practice. Both schools sought to substantiate their findings by inviting selected students to provide their views about the effectiveness of the classroom pedagogy used during the research lessons.

Data collection and analysis were ongoing processes with periodic meetings between the researchers and the researching teachers. It was an important feature of the project that the teachers were also considered to be researchers, primarily in an action research mode but also as critical evaluators of the data. The first stage of data collection was a baseline interview with each teacher on a one-to-one basis, designed to capture aspects of their current approaches to professional development and the extent if any of their existing engagement of students in planning and evaluating lessons. Comprehensive data collection instruments were co-designed for capturing planning decisions, observations, student reactions and data from post-lesson discussions including focus groups with the selected student evaluators. Video capture of the lessons enabled the researchers and teachers to evaluate and revisit rich records of the lesson processes. The final stages of the project involved one-to-one interviews with the teachers as a follow through for the initial baseline interviews.

The data analysis involved reducing large volumes of qualitative data (including extensive narrative, interview and video data) to manageable levels that could enable meaningful findings to be identified. This was accomplished firstly through a process of collating the various perceptions of the teachers (from interviews and narrative records of meetings, observations) under a set of main themes including the effectiveness of Lesson Study as a peer-to-peer professional development approach, a comparison of Lesson Study to other forms of professional development experienced by the teachers, the perceived impact on student learning, the perceived impact on classroom practice, being observed by colleagues, being an observer, involving students in lesson evaluation, the effectiveness of Lesson Study in promoting self-evaluation and developing a team approach. A parallel pursuit was the identification of any perceived limitations of the Lesson Study approach. Once the findings had been refined through discussions within the researcher team, they were tested for validity with the teachers themselves. The Findings section below provides an overview of the collected data under the headings: Lesson Study effectiveness in professional learning, Lesson Study impact on classroom practice and a critique of the Lesson Study approach

## **Results and Discussion**

### **Lesson Study effectiveness in professional learning**

All of the teachers viewed the Lesson Study process as an enriching and beneficial experience and identified aspects that were of value to them professionally. They felt that the dual role as researchers and change agents in a typical action research cycle had broadened their perspectives and knowledge in terms of practice, self-efficacy, critical thinking and 'reflection-in-action'; qualities which A. Lauriala (2011) associates with good pedagogy.

The sharing of good practice was viewed overall by the teachers as enriching and inspiring and in the case of the NI school, they expressed the view that for the first time, they were able to observe how students learn across subjects. One of the Home Economics teachers in the RoI school reported that the project provided 'an opportunity to share expertise and resources and to bounce ideas off one another.' The Lesson Study method was considered effective due to the peer-to-peer, collaborative approach adopted. The collegial process was viewed by all as beneficial and enjoyable, as illustrated by a comment from an NI school teacher: 'through this project we have been afforded the time to "connect" with our colleagues and to make valuable links with colleagues from other departments.' An important finding from the NI schools was the positive effect of meaningful reflection and discussions among teachers from different subject areas on student learning and the observation of students' learning across a range

of subjects. Before the project, the teachers did not have exposure to how students learn across subjects and one of them stated that:

‘I believe undoubtedly this is the way forward in terms of self-evaluation, learning and teaching as I have been given the opportunity to plan, prepare, observe and evaluate alongside teachers who are from different departments and who are at different stages of their teaching careers than me.’

Some teachers articulated the value of group planning and discussions to their own practice and they would have liked more time for collaborative work. Traditionally, the norm had been an individual rather than a cooperative approach to professional practice. The expression of the positive support experienced by the teachers was an interesting development with one teacher declaring: ‘I felt secure and supported within my team.’ Another teacher reported: ‘I have been inspired by certain strategies that my colleagues employ in their classrooms, so this has allowed me the opportunity to learn from fellow professionals and continue to develop and grow’.

Reflective practice has been widely recognised as an essential teaching quality. The General Teaching Council for Northern Ireland (GTCNI) outlined the value of reflective practice and action research in their document *Teaching: The Reflective Profession*. They stated that teachers ‘can develop new understandings of learning, teaching and educational change’ (Teaching: the Reflective..., 2007, 9) through reflective practice. The observations and lesson deconstructions that take place as part of a Lesson Study cycle can be very important tools in developing skills of self-evaluation and reflection. One of the Home Economics teachers felt that it was “a highly effective way to self-reflect about different aspects of my teaching. I feel I have also begun to reflect more deeply about the learning of the pupils, and more specifically how they learn.” Lesson Study can assist teachers in such reflective and critical problem solving by generating professional dialogue around issues of student learning and teaching methods, a process which P. Dudley argues results in “pedagogic solutions” (Dudley, 2008, 6).

Involving students in evaluating the lessons recognised them as important stakeholders who provided teachers with valuable feedback on the teaching methods used. As one teacher put it ‘they made some excellent suggestions and their input was very valuable’. All of the teachers were of the view that Lesson Study focuses largely on the student experience and it is this characteristic that sets it apart from other methods of professional development. Arguably this is because the Lesson Study method is strongly grounded in classroom practice and the inclusion of the student perspective further enriched professional learning.

All of the teachers also favoured Lesson Study as a model of professional development over other models they had experienced: ‘It is more valuable than subject workshops as it’s based at ground level.’ There was consensus among the teachers that active involvement in their own professional learning contributed to the success of this approach and this is reflected across the literature. For example, M. Dadds (1997) argues that top-down ‘delivery model’ initiatives are ineffective as the teacher is inactive in the process whilst A. Lauriala explains that in bottom-up approach teachers are “filters of innovations” (Lauriala, 2011, 17), and these innovations are successful if teachers understand and accept them. C. Day (1999) endorses the importance of the centrality of the teacher in decision making concerning the direction of their own professional learning and P. Dudley (2008) argues that there is mounting evidence of the increased use of teacher-teacher and school-school models of professional learning internationally. On the basis of the literature and the data in the project, it is reasonable to argue that Lesson Study contributed to professional learning in this study due to the grounded, collaborative and active approach involved and the generation of professional dialogue around real and complex issues of student learning and pedagogy. The value of self-evaluation and reflection-in-action was recognised as a way of broadening perspectives and understanding practice in depth, which in turn informed thinking and future decision making in relation to classroom practice.

### **Lesson Study impact on classroom practice**

The impact of Lesson Study on the student outcomes in the project was not formally assessed through examinations, but the teachers expressed their professional opinions that the quality of learning improved as a result of the pedagogical approaches planned and implemented. One teacher, for example, was convinced “that pupil outcomes improved for the vast majority of those who were involved in this process”. P. Dudley (2008) reported a similar finding from his Lesson Study pilot project, which was that students’ views on learning changed and that they became overtly involved and engaged in the process of learning. “They see that learning is a process that they can have an impact on ... they begin

to take ownership of the whole learning process ... they're engaging with us, in helping us to help them to learn" (Dudley, 2008, 6). As emphasised above, the involvement of students in this current research had enhanced teacher learning about practice:

'through focusing on the pupil voice, it has ensured that the evaluation of my teaching is much more worthwhile ... lesson observation is allowing us to focus more meaningfully on the engagement and learning of our pupils.'

The teachers that engaged in observation of their colleagues were able to see the lesson delivery at face value and they were also able to observe student learning. They reported learning from and being inspired by their colleagues within and across subject departments. One Home Economics teacher commented: 'I have had the opportunity to go into other teachers' classrooms and pick up new ideas and strategies. I feel this has made my teaching more varied and dynamic.' Another teacher reported that she had: 'developed excellent relationships with teachers who are not from within my subject area. I feel this has been hugely beneficial as I would not have had the opportunity to learn from their expertise without Lesson Study.' In this manner, many aspects of the Lesson Study project impacted positively on classroom practice and collegiality. Teachers variously reported improved quality of student learning, the benefits of the involvement of students in the Lesson Study feedback, experimentation with pedagogy in the lessons, the development of ideas from group deconstruction of the lessons and the creation of a platform for the sharing of ideas.

### **A critique of the Lesson Study approach**

Conditions for good working relationships were established at the outset of the project by the participants and they felt that the key elements of the modus operandi of the process included trust, confidentiality, professionalism, respect, listening, taking risks, accountability, openness to improvement, constructive criticism and positive reinforcement. The project gathered momentum once the teachers developed a thorough understanding of the Lesson Study approach and could see the results beginning to manifest in practice. When positive results were experienced during the research lessons, teachers gained confidence in the use of the technique, for example: 'I feel we became more comfortable working together in the second round of lesson planning as we knew what to expect.'

One aspect of Lesson Study, classroom observation, has the potential to cause difficulty if colleagues view it in the same light as having their teaching performance evaluated: 'We thought it would be like being back on teaching practice by being observed.' S. Mitchell (Gardner et al., 2012) refers to the tension that existed in relation to classroom observation during a larger Lesson Study project in Northern Ireland schools, throwing light on the potential impact of teachers' previous teaching practice and inspection experiences on their views relating to classroom observation. On the one hand, 'some saw the project as a good opportunity for their own professional development and remembered the benefit of being evaluated and observed, recalling teaching practice and the chance to watch someone else as being "where you learn the most" (Gardner et al., 2012, 20). However, others had reservations about classroom observation as "since usually with observation people feel they're being judged" (Gardner et al., 2012, 20). There was consensus that with increasing familiarity, observation was viewed as less threatening: 'but as we got more into it, we soon realised that we all were accepting ownership of the lessons as we had planned them together and as a result we didn't feel nervous or inadequate.' They enjoyed it, despite at times being apprehensive about it, especially in the initial stages.

There was initial concern about the potential impact of classroom observation on students, for example that the process of observation could make them self-conscious and affect their performance. However, it was reported by all of the teachers that students benefited overall, especially as they were key participants in the research lessons.

Many of the teachers reported that the major obstacle to adopting the Lesson Study method was time: time for engaging with colleagues, trying out new ideas, planning, observing and debriefing:

'Time is an issue. Due to the demands of school life, observation feedback was not immediate after the actual lesson. Therefore, the lessons learned could not be implemented in my teaching in the lessons following the observed lesson.'

S. Mitchell reports the view of one head of department who "observed that in an ideal world there would be time to plan, explore and develop things" (Gardner et al., 2012, 19), but in reality, teachers can be

burdened with assessments and paperwork that hinder their planning. She explains how some schools viewed the Lesson Study initiative as “the gift of time” (Gardner et al., 2012, 19) with the result that some teachers view it as a luxury competing against a lack of time for preparing resources, implementing and evaluating work to best effect. The Teaching Council of Ireland (Policy on the Continuum..., 2011) acknowledges the essential need for time and space to nurture the ‘development of teachers as reflective, enquiry-oriented, life-long learners. This development is essential to prepare teachers to continually self-evaluate, collaborate and adapt throughout their careers in order that they might reflect the changing realities of the classrooms in which they will teach’ (Policy on the Continuum..., 2011, 9). Time is a hugely important factor influencing practice and some researchers (Galanouli, Murphy, Gardner, 2004) argue that a lack of time for training can hinder professional development. D. Galanouli (2010) also notes that lack of time is a key cause of unwanted stress at work and recommends the factoring in of teacher cover in school budgets for those engaged in Lesson Study in order to allow time for planning, review meetings and the live observation of research lessons.

## Conclusions

This research study sought to explore whether Lesson Study could improve classroom pedagogy through peer-to-peer collaboration in improving aspects of classroom practice. The data from the research roundly endorses the view that it can. A considerable improvement in aspects of the classroom practice under study was noted. In particular, Home Economics teachers’ reflections on the Lesson Study approach provided evidence of collaborative professional learning, meaningful dialogue about pedagogy and student learning, and deeper levels of reflection on and in practice.

Opportunities were created to experiment with teaching approaches, resources and lesson planning and to share good practice. The teachers were actively engaged in action research in the classroom and the shared lessons promoted professional dialogue, inquiry-oriented conversations, self-evaluation and collective reflection. Lesson Study enabled a non-threatening, constructive and active peer-to-peer process of improving classroom teaching, which was firmly grounded in classroom practice. An important finding was that working across subject areas provided fresh insights to teachers about student learning in different contexts while using Lesson Study within the single subject area of Home Economics was found to be effective in achieving pedagogic improvements. There was consensus that the active involvement of students in their own learning and in the planning and evaluation of teaching methods and classroom activities enhanced the process of improving pedagogic practice. The live observation of research lessons was a revealing experience for teachers involved in the study as they were exposed to the dynamics of classroom practice in ‘real time’. They were actively engaged as researchers and change agents by collecting and interpreting findings that informed their future thinking and decision making in relation to their own classroom practice. Authors offer the following summary of the reasons why they consider Lesson Study to be an effective method of professional development:

‘It helps experienced teachers selectively to ‘switch off’ enough of the filters on their experience to see their teaching more clearly; because it enables teachers to learn something new about this teaching and their pupils; and because it helps teachers appreciate, through the eyes of their colleagues and the reflective process, the individual needs of all the children. Perhaps most importantly in these communities of practice, it makes teachers’ practice visible to each other in the group, enabling them to create joint solutions to the enduring challenge ‘how best to teach x better to y’.

All things considered, this research has demonstrated that Lesson Study is an effective professional development model, which has contributed to the development of two sets of teachers’ pedagogical knowledge in two schools in Ireland. It combines reflective practice and systematic sharing in an organic context that radically contrasts with ‘top-down’ approaches to professional development. This project, based on two schools, may not offer a generalisable basis for concluding that Lesson Study will succeed as an effective school based professional development model, but the growing and consistent empirical base across the world highlighting its benefits certainly requires that it is given serious consideration by teaching councils, school managers and the Home Economics teaching profession.

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## Lifestyle Peculiarities of Riga Basic School and University Students

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**Abstract:** Lifestyle is an important factor which influence student's health, way of life and study results. Students usually have many home works, high mental load and sometimes - emotional strain. These circumstances influence students' lifestyle. At the same time lifestyle should be healthy and active, enough physical activities are necessary in order to maintain good physical fitness and health level. The aim of the study was to compare lifestyle peculiarities of basic school students and higher educational institution students. The electronic survey of Riga 2<sup>nd</sup> Gymnasium 9<sup>th</sup> grade basic school students and University of Latvia 1st course pedagogical programmes students was carried out. Altogether 130 students were questioned. The results of the research showed that university students spend more time on a computer than basic school students. They spend more time on a computer on activities connected with studies, but the time which students spend on a computer with activities not connected with studies do not greatly differ between both group students. The time which students spend doing study home works in general does not significantly differ between student groups, but some basic school students spend much time - more than 20 hours during week – by doing study home works. The physical activity level of basic school students is higher than the physical activity level of university students. For many university students' physical activity level is very low, it is recommended to improve it. The time which students spend watching TV, reading literature and dealing with music is not greatly different between basic school students and university students. The time, which students spend during sleep, is longer for university students in comparison with basic school students. For many basic school students, it is too short.

**Keywords:** school education, lifestyle, students, physical activities, work with computer.

### Introduction

Lifestyle is one of the most important factors that influence students' health level, study outcomes, motivation to learn and quality of life. Unhealthy lifestyle can lead to obesity, health disturbances, emotional problems, sleep and behavioural disturbances and promote the formation of social problems. The most common health problems among young people are linked with wrong diet, lack of physical activities, use of addiction causing substances and wrong sexual behaviour.

In many countries of the world obesity of children', and adults is rapidly growing. Investigations have shown that high amount of time spent on academic-related activities, excessive homework, inadequate sleep, physical inactivity and high screen viewing time are major contributors to high paediatric obesity (Ren et al., 2017). Long duration of stressful home works is a potential obesity causing factor in children (Michaud et al., 2015). The majority of students did not meet physical activity recommendations. Scientists have come to the conclusion that immediate action, and efforts should be made worldwide to increase levels of physical activity among schoolchildren (Guthold et al., 2010).

Students might be one of the groups among the population, who experience a deep emotional strain. Emotional strain affects an individual's health condition negatively. Apart from studies, students do part time jobs to earn money, which increase their mental load. Psychological load is closely linked with the emotional strain. Appropriate physical activities and healthy lifestyle favours to keep up students' health and work performance as well. Students, who participate in sports and physical activities, collaborate in household activities, do not smoke and do not use addictive drugs, do not consume stimulant drinks, have fit and healthy meals, spend less time per day on the computer, interactive games and TV, go out with friends moderately, usually have good quality sleep, sleep more, watch videos, study, read, and do not use the computer before going to sleep, have better health and they also achieve better school performance (Pestana, Duarte, Coutinho, 2015).

The lifestyle and interests of students are influenced by region where student lives. Results of research have shown that adolescents living in rural areas are less exposed to the sedentary behaviour, they chose more active leisure, and have higher level of physical activity (Regis et al., 2016). The results of other investigations have shown that in general adolescents who live in towns are more satisfied with life than adolescents who live in urban areas (Viera et al., 2015). Previous investigations by Latvian scientists have

shown that rural school students in general more often feel the lack of time and overload than urban school students (Porozovs, Mikelsons, Voita, 2015). Information and communication technologies (ICT) have become a significant factor, which influence lifestyle, education and everyday life of people (Facer, 2011). Effective ICT implementation can promote constructive learning environment, which facilitate creative and critical thinking of students (Al Harbi, 2014). Wide using of ICT can lead to different effects. Results of research have shown that boys who use computers for doing homework, "surfing" the Internet, and communicating with others engage in more social-physical activities than others but boys who use computers to play games tend to be more social-behaviourally inactive (Ho, Lee, 2001).

In order to maintain health level of young people and reach high learning outcomes it necessary to understand lifestyle peculiarities and problems of different age students. Information about lifestyle peculiarities could give ability to work out recommendations and carry out measures for improvement of students' lifestyle and maintain good health level. The aim of the study was to compare lifestyle peculiarities of basic school students and higher educational institution students.

### Methodology

The electronic survey of Riga 2<sup>nd</sup> Gymnasium 9<sup>th</sup> grade basic school students (basic school students) and 1<sup>st</sup> course pedagogical programmes students from University of Latvia (university students) was carried out. Altogether 130 students were questioned (68 university students and 62 basic school students). The survey was worked out in order to clarify and compare the peculiarities of lifestyle of different age students. The research was carried out on the 2017<sup>th</sup> year.

SPSS statistical data processing program was used for statistical analysis. Mann–Whitney U test was used for data analysis. The research question was: are there differences in lifestyle of basic school and university students?

### Results and Discussion

The results of the survey showed that time which students spend on a computer is rather different for different students. In general university students spend more time on a computer than basic school students (Figure 1).

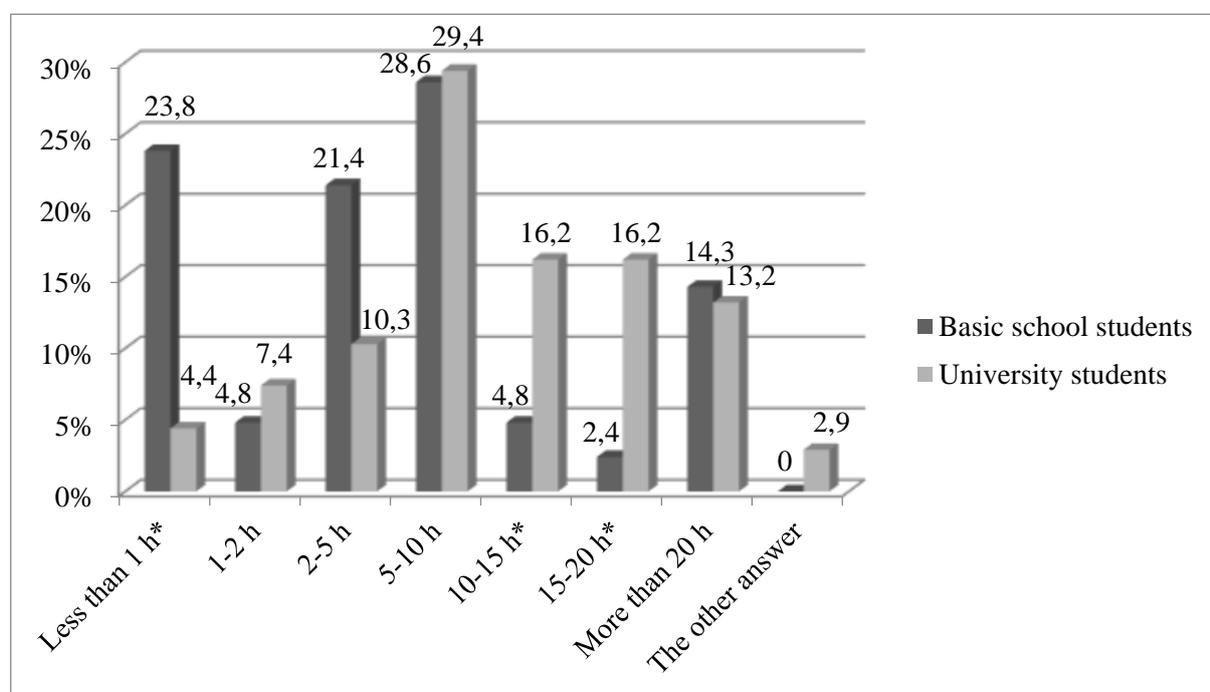


Figure 1. The time which students spend on a computer (in % from the number of respondents) (\*  $p < 0,01$ ).

Twenty-three-point eight percent of basic school students spend less than 1 hour on a computer during week. Only four-point four percent of university students spend less than one hour during week on a computer (the difference is statistically significant  $p < 0,01$ ). The majority of basic school students spend 2-5 or 5-10 hours

during week on a computer, but the majority of university students spend 5-10, 10-15 or 15-20 hours during week on a computer. At the same time in both groups there are students who spend more than 20 hours during week on a computer (14,3 % of basic school students and 13,2 % of university students).

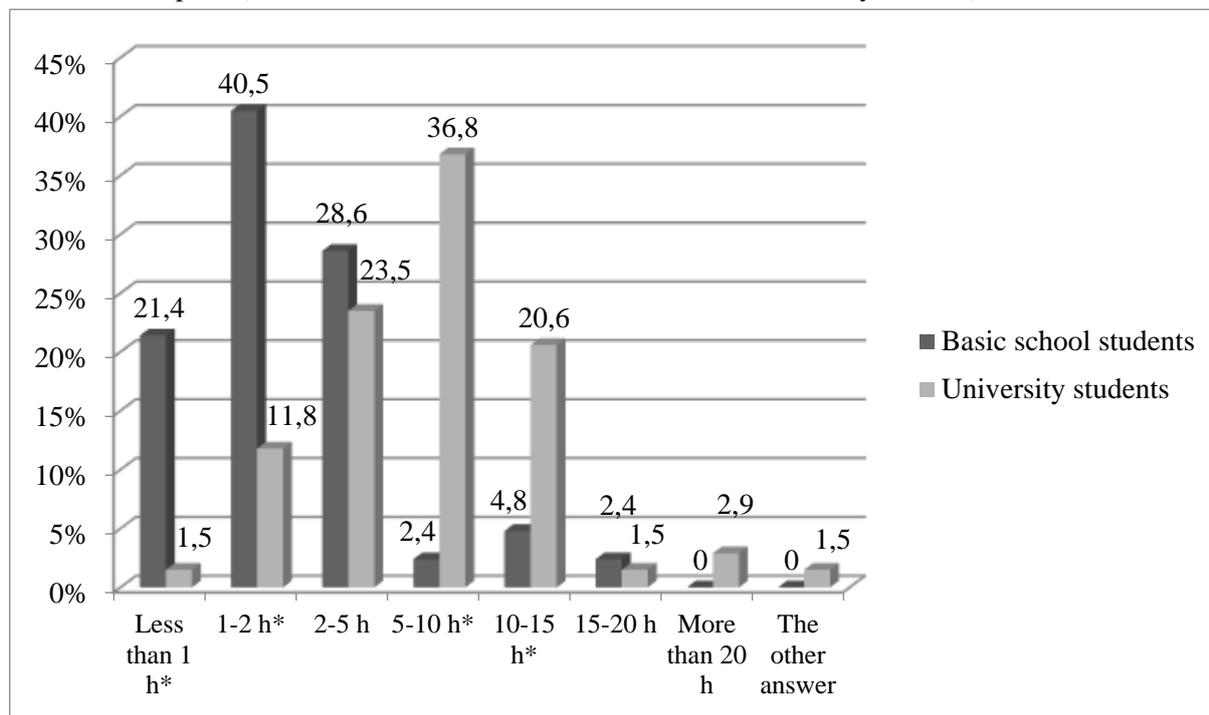


Figure 2. The time which students spend on a computer with activities connected with studies (in % from the number of respondents) (\* p<0,01).

University students spend more time on a computer on activities connected with studies in comparison with basic school students (Figure 2).

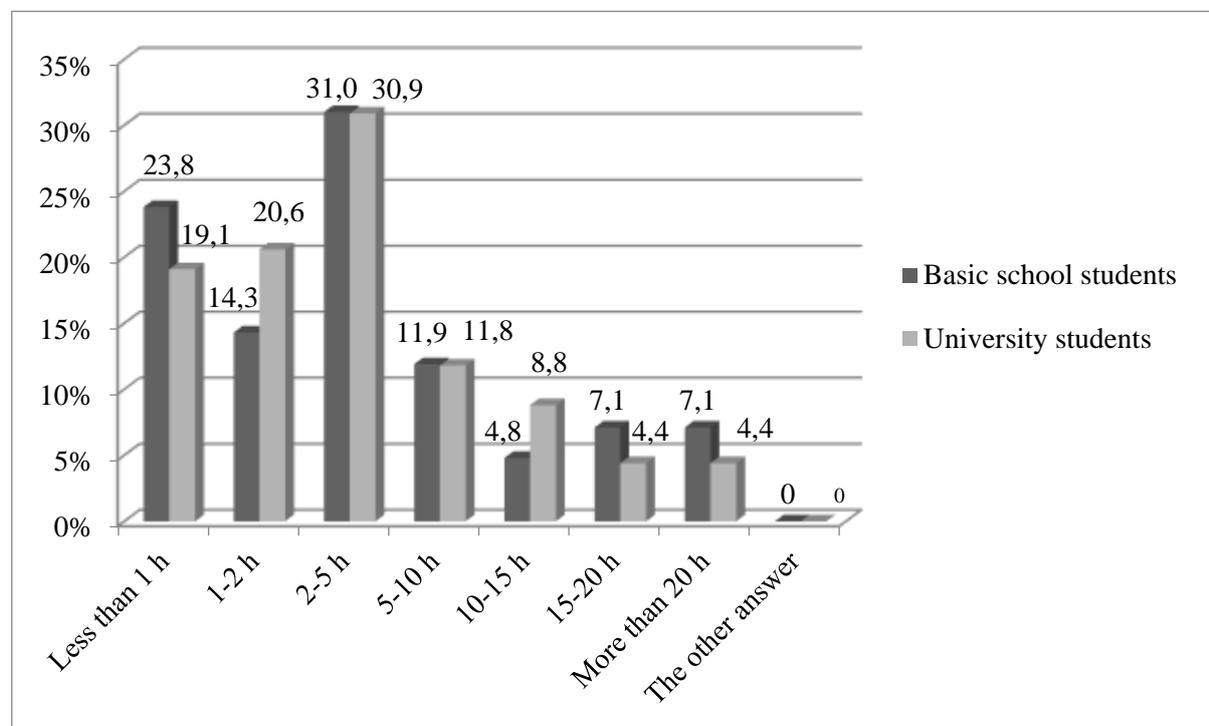


Figure 3. The time, which students spend on a computer with activities not connected with studies (in % from the number of respondents).

Twenty-one-point four percent of basic school students spend less than 1 hour during week on a computer, but only one-point five percent of university students spend less than 1 hour during week

on a computer with activities connected with studies (the difference is statistically significant  $p < 0,01$ ). The majority of basic school students spend 1-2 or 2-5 hours, but the majority of university students spend 5-10 or 10-15 hours on a computer with activities connected with studies.

There are no statistically significant differences between student groups in the time, which students spend on a computer with activities not connected with studies (Figure 3). The majority of students spend 2-5 hours during week on a computer with activities not connected with studies (31 % of basic school students and 30,9 % of university students).

Data of literature suggest that higher school performance significantly positively correlated with internet use for study but negatively correlated with internet use for general purpose. Academic use of the internet could be a means of achieving good school performance (Kim et al., 2017). These data correlate with results of current investigation - university students spend more time on computer in comparison with secondary school students in order to fulfil tasks connected with education.

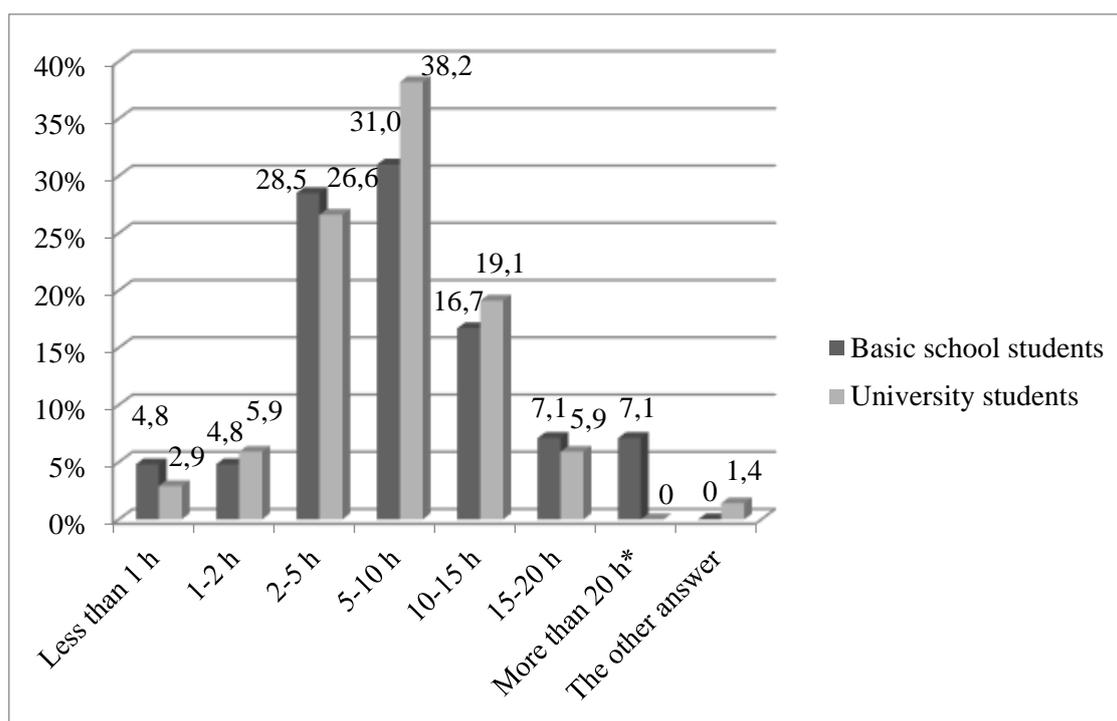


Figure 4. The time which students spend doing study home works (in % from the number of respondents) (\*  $p < 0,01$ ).

The time which students spend doing study home works is different for different students (Figure 4). The majority of basic school students as well as university students spend 2-5 hours during week (28,5 % of basic school students and 26,6 % of university students) or 5-10 hours during week (31 % of basic school students and 38,2 % of university students) doing study home works. There are more basic school students (7,1 %) in comparison with university students (0 %) who spend more than 20 hours during week doing study home works. Obviously, some of basic school students are very interested in obtaining new knowledge and development of their career.

The physical activities of basic school students are higher than the physical activities of university students (Figure 5). Nineteen-point four percent of university students' physical activities are very low – they spend less than 1 hour during week engaging in physical activities, only four-point eight percent of basic school students have so low physical activity. Twenty-eight-point six percent of basic school students spend 5-10 hours during week participating in physical activities, but only nine-point seven percent of university students have such level of physical activities (the difference is statistically significant  $p < 0,01$ ). Perhaps university students are not so interested in sports or they have less time to go into sports.

The results of current investigation correlate with the results of J. Marks and colleagues, which suggest that transitioning from primary to secondary school has negative impact on children's physical activity

and sedentary behaviour (Marks et al., 2015). Perhaps, it may connect with changes in school environment, changes of students' interests and increase of duties and tasks.

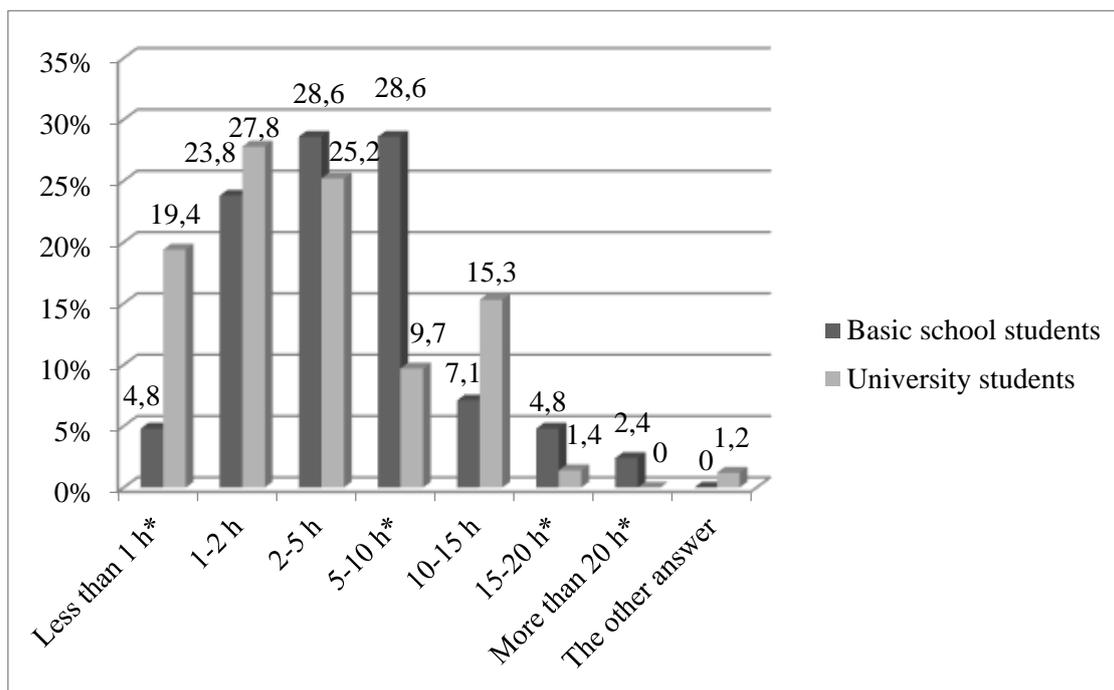


Figure 5. The time which students spend participating in physical activities (in % from the number of respondents) (\*  $p < 0,01$ ).

The time which students spend watching TV is not greatly different between both group students (Table 1). Thirty-eight-point one percent of basic school students and thirty-six-point eight percent of university students watch TV less than 1 hour during week. These results show that many students find more important or more interesting activities than watching TV. Only few students watch TV 10-15 hours during week (4,8 % of basic school students and 4,4 % of university students) or more.

Table 1

**The time which students spend watching TV, reading literature and engaging in music (in % from the number of respondents)**

Time during week	Watching TV		Reading literature		Dealing with music	
	Basic school students	University students	Basic school students	University students	Basic school students	University students
Less than 1 hour	38,1	36,8	40,5	35,3	31,0	30,9
1-2 hours	19,0	19,1	23,8	22,1	21,4	22,1
2-5 hours	29,0	20,6	26,2	29,4	14,3	13,2
5-10 hours	7,4	10,3	2,4	2,9	10,5	14,6
10-15 hours	4,8	4,4	0	1,5	3,8	2,9
15-20 hours	0	1,5	0	0	7,1	4,5
More than 20 hours	0	1,5	0	1,5	4,0	5,9
The other answer	4,8	5,9	7,1	7,4	7,9	5,9

The majority of students are not spending much time for reading literature (Table 1). Forty-point five percent of basic school students and thirty-five-point three percent of university students read literature less than 1 hour during week. Only two-point four percent of basic school students and two-point nine percent of university students read literature 5-10 hours during week.

The majority of students are not much dealing with music as well (31,0 % of basic school students and 30,9 % of university students are dealing with music less than 1 hour during week) (Table 1). At the same time there are students between both groups who are dealing with music 15-20 hours during week and even more than 20 hours during week (4,0 % of basic school students and 5,9 % of university students). Perhaps these students closely connect their profession and lifestyle with music.

The time, which students spend during sleep is longer for university students in comparison with basic school students (Figure 6). Twenty-eight-point six percent of basic school students sleep less than 6 hours during night, but only five-point nine percent of university students sleep less than 6 hours during night. Seventeen-point six percent of university students sleep 8-9 hours during night, but only two-point four percent of basic school students sleep 8-9 hours during night.

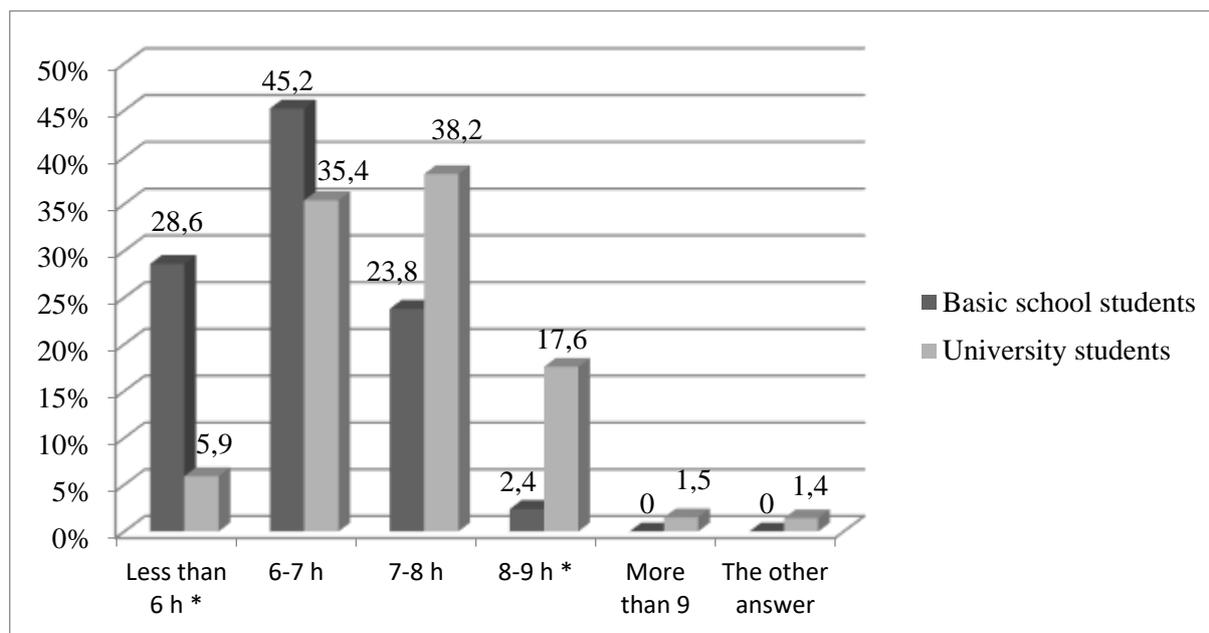


Figure 6. The time, which students spend during sleep in night (in % from the number of respondents) (\*  $p < 0,01$ ).

Obviously, the lifestyle of basic school students is more active and perhaps they less connect their health level with enough sleep during night. It is well known, that adequate time spend in sleep is very important for maintaining health, but it seems that for many of basic school students it is too short.

## Conclusions

- University students spend more time on a computer than basic school students. University students spend more time on a computer on activities connected with studies but the time, which students spend on a computer with activities not connected with studies do not greatly differ between both group students.
- The time which students spend doing study home works in general do not greatly differ between basic school students and university students but there are more basic school students (7,1 %) in comparison with university students (0 %) who spend more than 20 hours during week doing study home works.
- The physical activity of basic school students is higher than the physical activity of university students. For many university students' physical activities are very low. Nineteen-point four percent of university students spend less than 1 hour during week engaging in physical activities. It is recommended to involve students in different physical activities, such as sports, dance and hiking in order to reduce sedentary lifestyle possibilities.
- The time which students spend watching TV, reading literature and dealing with music is not greatly different between basic school students and university students. The majority of both group students spend less than 1 hour during week or 1-2 hour during week for these activities but in both groups, there are students who spend more than 20 hours during week (4,0 % of basic school students and 5,9 % of university students) dealing with music.

- The time, which students spend during sleep, is longer for university students in comparison with basic school students. It is too short for many basic school students. Twenty-eight-point six percent of basic school students sleep less than 6 hours during night. It is recommended for these students to plan daily activities in such way, that there is enough time for sleep during night.

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## Development of Learning and Feedback Giving Skills in Home Economics and Technologies Education

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**Abstract:** The article highlights the necessity for self-directed learning and feedback skills in development of pupils' learning. They so far have not received enough attention in the content of the curriculum. Using the lessons learned in pedagogical studies, it is grounded that learning to learn does not only make it possible for Home Economics to learn, but also in any area of life, in all contexts, and it has a significant impact on learning progress and achievement. The aim of the research is to evaluate the pupils' learning skills of 6th-8th grade Jelgava Secondary school N4 in *Home Economics and Technologies* program *Textiles* according to the theoretical knowledge and conclusions. The research used methods of questioning, data mathematical processing and evaluation. The results of the survey show that the students have generally good learning skills and show specific aspects of improving them. The example of feedback in this article while learning the subject on *How to Knit an Item* provides information for the teacher how to organize the learning process effectively for improving pupils' learning skills.

**Keywords:** learning skills, feedback, Home Economics and Technologies, primary school education.

### Introduction

Educational Reforms *The school in 2030* radically reverse the approach to teaching, with the emphasis on student performance and their ability to do so, thus gaining the competencies required in the 21<sup>st</sup> century. A. Schleicher argued that the key to the success of a school graduate is not the amount of knowledge gained, but what he can do with his knowledge (Kompetenci attistosa macisanas..., 2017).

The author's experience suggests that, despite the fact that the aspects, which correspond to intracontextual link among the subjects, including *Learning to learn skills* development, have already been formulated already in 1998 in educational standards of Latvia, the lesson observation and analysis, as well the analysis of student performance show that it is not a routine practice in all schools (Namsone, 2015). Therefore, the goal of education reform is a school that supports the learning of each student and implements learning through an in-depth approach. It is taught by everyone: students, teachers, school management and other staff (Izglitiba musdienigai lietpratibai..., 2017, 16).

Studies by pedagogues suggest that self-directed learning skills have a significant impact on academic achievement. Not in vain J.S. Bruner sees the "learn how to learn" skill as a key to learning (Bruner, 1960).

Learning is a process in which an individual acquires knowledge, skills, attitudes, and improves his or her experience. Learning is a purposefully organized activity, on the basis of which simultaneously a statement is developed. It is an important engine of human and life development, an interest in life, a key to the quality of life of an individual (Holzkamp, 1995). In this context, in the context of learning, R. Saljo (1979) and F. Marton, G. Dall'Alba, E. Beatty (1993) talk about the accumulation of knowledge, the use of information, memorization, the acquisition of various skills, techniques and facts so that they can be used when needed.

In the context of lifelong learning, learning to learn is defined as the ability to undertake, organize and continue learning, effectively planning time and information, acquiring new knowledge and skills. This is the process of information processing in the interaction between the already learned (existing knowledge) and the new information (subject of learning) which is not yet known. Learning is always the first person to learn and I have my own reasons for it. It is an understanding of your learning and thinking process and needs, to complement previous knowledge and life experiences to use in a variety of contexts: at home, at work, in education and throughout life (Key Competences of Lifelong..., 2018).

In all cases, learning to learn requires a learner to be familiar with the learning strategies chosen for learning purposes, to be able to plan his or her learning, to organize and regulate it, to evaluate his or her success,

the strengths and weaknesses of his knowledge and skills, the causes of success and failure. Likewise, the student must be able to work with others, gain and share their knowledge, seek support if necessary.

Learning skills can be developed because a person, through learning and cognition, constructs his own understanding of things and the world by himself. J.S. suggested that schools use the discovery of learning more often when students formulate training hypotheses, test them on their own, rather than simply accept the teacher's statements as indisputable truth (Bruner, 1960). Learning will only take place when the subject is considered to be meaningful and personally relevant to the learner himself, and when the student actively participates in learning and learning (Mayer, Wittrosk, 1996).

In order to develop pupils' learning to learn skills, a teacher has to link the strategies of learning with the content in a particular way, since self-directed learning is better in a specific area (Perels, Guertler, Schmitz, 2005). It is also necessary to provide a supportive learning environment for students, where they can train self-directed thinking (Van Hout-Wolters, Simons, Volet, 2000) and the use of learning skills in all areas (Fuchs, 2003). Progress and the improvement of learning outcomes depend on the student's ability to adjust his or her pace and performance to a specific, long-term goal.

Effective learning will occur if there is a partnership between teachers and pupils where the students will gradually learn to lead their learning by themselves, the goals and tools for measuring the results achieved there will be defined clearly. This will happen if the teacher is clear about organizing the study process (lessons); what the students learned during the lesson (during the course of the topic); how the teacher will find out what the result is achieved per lesson (during the course of the topic); how students can understand what they have learned in the lesson (during the course of the topic).

As a result of student learning skills improvement, they should be able to decide by themselves: how to divide a complex task into smaller ones, how to choose the methods and tools to be used; when to set the time frame, deadlines; which responsibilities are shared and which are not; where to decide, what tasks to do in the classroom at home elsewhere in the process of planning their own learning.

Pupils' learning habits should be linked to the organization of the learning process, parts (of the subject acquisition) of the lessons, planning, monitoring and evaluation (Schraw, Dennison, 1994). At the stage of updating the subject, the student prepares for learning, meaning learning planning (goal setting, strategic decision making, self-efficacy, natural interest).

Planning is when, thinking about the meaningful result, you are looking for answers to questions as I know that it's achieved, what should I do to achieve it. In the second stage, learning is an important learning process - monitoring, learning step-by-step (self-study, focus, maintenance of internal requirements, time scheduling, search support, self-monitoring, self-generated sequencing system). In turn, in the third stage, the feedback gives an understanding of what the student learned - assessment I understand what I learned (causation and consequence analysis, adaptation).

Another essential requirement for the development of learning skills is the constant and effective feedback in the context of the goals set (Wiggins, 2012). Feedback is information about what the student is doing towards the goal, assessment or recommendations for improving performance-performance (Hattie, Yates, 2014). Feedback is required at all stages of the learning curriculum. Studies have shown that learning less, giving more feedback, can lead to better learning (Bransford, Brown, Cocking, 2000; Hattie, 2011; Marzano, Pickering, Pollock, 2001). In this context, it is important to have less feedback from the teacher, but more about the student's own activities.

The aim of the research is to evaluate the pupils' learning skills of 6th-8th grade Jelgava Secondary school N4 in *Home Economics and Technologies* program *Textiles* according to the theoretical knowledge and conclusions.

## **Methodology**

The study is based on the findings of the need for self-directed learning, developing student learning and feedback skills. In the first part of the study, a questionnaire was organized to familiarize students with the learning habits. The self-assessment criteria for students' learning habits in Home Economics and Technology (Table 1) were based on the materials of School 2030 (Schraw, Dennison, 1994; Izglitiba musdienigai lietpratibai..., 2017).

The study took place in Jelgava Secondary School No. 4 in the framework of the Textile program in December 2017. A total of 35 schoolchildren from grades 6 to 8 were interviewed.

The questionnaire included 24 questions, arranged in 3 parts.

- 1-10 question-planning part (preparation for learning);
- 11-19 question-monitoring part (learning);
- 20-24 question - part of evaluation (understanding what learning is learning).

Schoolchildren had to assess their learning habits on three positions: yes, no, sometimes.

In the second part of the research, opportunities were sought for using home-school education through feedback, developing and improving pupil's learning skills, especially in technology acquisition. The author believes that adequate feedback helps schoolchildren learn to learn about the process of handicraft and the making objects, to improve their creative experience.

Questionnaire was prepared based on the questions raised by G. Schraw and R.S. Dennison (1994) assessing metacognitive awareness for each stage of the learning curriculum (planning, monitoring, evaluation). An example of the feedback is shown in Table 2 on topic *How to Knit an Item* over.

## Results and Discussion

The results of the study presented in Table 1 are analyzed below. Generally good results can be observed in the first part of learning the content – in the part of **planning**. Almost every student responded that the teacher would recall what has already been taught and what will be necessary for the lesson (91,5 %), that the time for self-study and thinking is given (80 %), and that the content to be learned and objectives to be achieved are clear. Seventy-seven commas two percent (77,2 %) schoolchildren understand that the learning objectives help to achieve the goal of the lesson.

In the second part - **monitoring** - almost all schoolgirls- 80 %, sometimes- 11,4 %, admit that they have the opportunity to improve their accomplishments, improve their knowledge and skills. Mostly, 68,5 % students recognize that they have the opportunity to work together with their classmates during the lesson. Also, the most part (68,6 %) of the respondents confirm that the teacher provides them with the information on where and how to do additional practice and learning better, in case they have a desire to study the subject thoroughly.

The answers to question 18, on the other hand, suggest that the teacher should pay more attention to providing the necessary feedback, as only 34,3 schoolchildren approve, and 45,7 % schoolchildren sometimes admit that they receive information from the teacher about their learning outcomes at the end of the lesson or a subject. The survey shows that co-operation with classmates help to learn better in 54,3 %, sometimes 28,6 %, as well as half the girls 57,2 % like, but 25,7 % sometimes like working in groups. Further, my wish is that my students would have a stronger desire to study the subject in depth. Questions 16 indicates that 42,8 % girls are motivated, but 25,7 % only sometimes are motivated to look for additional information on the Internet or in other sources of information (magazines, books).

The results of the third part – **evaluation** - show that the teacher's assessment of the learning outcomes is objective (77,2 % - yes, 20 % - sometimes). The respondents feel that they can notice and evaluate their learning habits by themselves (68,6 % - yes, 20 % - sometimes). However, the clear desire to improve their learning outcomes in Home Economics and Technologies is expressed only by a half of the schoolgirls (51,4 %), sometimes - by 45,7 % students. Perhaps, this is because the Home Economics and Technologies semester marks and total marks of the year are relatively higher than the marks in other subjects.

Answers to Question 21 show that there is a lack of the students' (42,8 %) recommendation skills to improve their classmates' learning outcomes. Lesson observations show that these skills are limited to some girls in the classroom. By learning to provide an effective feedback, the ability to give advice to their classmates might also be developed for the students' learning habits.

Generally, the case study shows that the learning skills of the schoolgirls are well developed. The negative answers are in the range from 2.8 % to 11.4 %. It is about one tenth. The students' answers to the questions reveal specific aspects of the development of learning skills for the teacher: to improve the methodology of motivating the interest, the students' ability to formulate, ask questions, improve the study

materials, provide them with information about the possibilities for in-depth study of the substance, and develop cooperation skills in order to give recommendations to classmates.

Table 1

**Self - Evaluation of Students' Learning Habits in Achieving Education  
in Home Economics and Technologies** (number of students n=35, answers in %)

AS parts	Criteria - how students learn	Yes	No	Sometimes
1. Planning	1. I understand the goal that has to be achieved	<b>77,2</b>	2,8	20
	2. I know learning will be exciting, interesting	45,7	17,1	37,2
	3. Teacher recalls what has already been taught and what will be necessary for the lesson	<b>91,5</b>	5,6	2,9
	4. It is clear to me what has to be done and how to do the training	51,6	5,6	<b>42,8</b>
	5. It is clear to me which learning objectives help to achieve the aim of the lesson	<b>65,7</b>	11,4	22,9
	6. I have been given the time for self-study and thinking in the lesson	<b>80</b>	2,9	17,1
	7. The learning tasks are interesting and practical for everyday life	45,7	5,6	<b>48,7</b>
	8. I have been given time for training and practicing in the lesson	51,4	17,1	31,5
	9. I can ask and consult if necessary	57,2	0	<b>42,8</b>
	10. I can express my opinion, offer my ideas on how the aim of the lesson can better be achieved	57,2	17,1	25,7
2. Monitoring	11. I have been given the possibility to cooperate with my classmates	<b>68,5</b>	5,8	25,7
	12. Cooperation with my classmates helps me to learn better	54,3	17,1	28,6
	13. I enjoy working in groups	57,2	17,1	25,7
	14. The teacher supports me in my learning	<b>65,8</b>	14,2	20
	15. I use various sources in preparation for the lessons	51,4	11,4	<b>37,2</b>
	16. Interest in the subject being taught is motivating me to seek additional information on the Internet or in other sources of information (magazines, books)	42,8	31,5	25,7
	17. The teacher has given me information where and how to do it better, if I want to learn a subject in depth.	<b>68,6</b>	2,8	28,6
	18. I receive information from the teacher about my learning outcomes at the end of the lesson and at the end of the topic.	34,3	20	<b>45,7</b>
	19. I have the opportunity to improve the work done, to improve my knowledge and skills	<b>80</b>	8,6	11,4
3. Evaluation	20. I can see, evaluate my learning habits	<b>68,6</b>	11,4	20
	21. I am able to recommend my classmates how to improve their learning outcomes (knowledge and skills).	42,8	<b>28,6</b>	28,6
	22. I have a desire to improve my learning outcomes in Home Economics and Technology	<b>51,4</b>	2,9	<b>45,7</b>
	23. I regularly prepare for Home Economics and Technology lessons and am actively involved in them	40	11,4	<b>48,6</b>
	24. Assessment of learning outcomes by the teacher is objective	<b>77,2</b>	2,8	<b>20</b>

Adapted from (Schraw, Dennison, 1994)

The example in the Table 2 is based on the theoretical lessons about the relevance of the feedback in the learning process.

In Home Economic and Technologies lessons, students have to evaluate themselves on regular bases about the process of learning according to the goal – which is to form a general understanding about knitting a sock and get practical experience in it. The example of the feedback given in the article can be used in parts, preferably in each stage of the learning in the lesson (topic) as a self-assessment. The questions make the students think about their own learning habits, the ability to manage their learning according to the plan and how one can carry out the idea of a knitted pair of socks to the real-life situation. Schoolgirls also learn to evaluate the effectiveness of their activities - the methodology and techniques for acquiring the knitting technology, the criteria for assessing the quality of the knitted item and the evaluation of their performance in relation to the intended result to be achieved. The example of the feedback given in the article can be used in parts, preferably in each stage of the learning lesson (topic) as a self-assessment. It can be done both - in writing and orally.

Table 2

**An Example of Feedback about Learning the Subject *How to Knit an Item***

<b>Stage 1- Planning</b>	<ol style="list-style-type: none"> <li>1. Was it clear to you which knowledge and skills would be necessary for reaching the result - a pair of self knitted socks, before you started knitting?</li> <li>2. What were your feelings before the work started?               <ul style="list-style-type: none"> <li>- I have the necessary ability;</li> <li>- I know that it will not be easy, but I am going to do it;</li> <li>- The teacher is asking too much from me;</li> <li>- I do not need it and I do not want to do it;</li> <li>- another variant ...</li> </ul> </li> <li>3. I had the opportunity to choose the type and size of the sock according to me Own skills: Yes/ No/ Why?</li> <li>4. I was aware of the knitting period section, before I started my work. Yes/No</li> </ol>
<b>Stage 2- Monitoring</b>	<ol style="list-style-type: none"> <li>1. What preparations did you make before knitting a sock?</li> <li>2. What kind of help did you use to make socks during knitting               <ul style="list-style-type: none"> <li>- a worksheet developed by the teacher;</li> <li>- I did (practiced, tried) with the teacher and classmates per hour;</li> <li>- I use information from books;</li> <li>- I use information on Internet resources;</li> <li>- I attend individual teacher consultations;</li> <li>- I use my mother or someone else's help;</li> <li>- I use classmates' help;</li> <li>- another version .....</li> </ul> </li> <li>3. I asked, consulted, and verified my activities, correctness, in the process of knitting a sock: Yes/No/ Why?</li> </ol>
<b>Stage 3- Evaluation</b>	<p>Which stages did you have difficulty in?</p> <ol style="list-style-type: none"> <li>1. How did you deal with the difficulties of knitting a sock?</li> <li>2. Did you fit into the teacher's deadlines:               <ul style="list-style-type: none"> <li>- during knitting the first sock: Yes/ No/ Why? ....</li> <li>- during knitting the second sock: Yes/ No/Why? ....</li> </ul> </li> <li>3. How did you plan your work? ....</li> <li>4. Did you ask for advice on how to improve your performance after you started knitting the first and the second sock? Who were they?</li> </ol>

In turn, the teacher can use the information obtained to improve or adapt the learning content methodology, to specify the learning tasks in the context of the result to be achieved.

### Conclusions

1. Learning to learn have a significant impact on academic achievement and in relation to educational objectives means:
  - to acquire and use information and knowledge, to use and accumulate, to learn the methods and skills of the operation,
  - to develop attitudes, to improve their experience, to motivate life-long education;
  - to know the chosen learning strategies;

- be able to plan to organize and regulate your learning;
  - to assess own progress, strengths and weaknesses of knowledge and skills, successes and cause of failures;
  - ability to collaborate with others, gain and share their knowledge;
  - seek support if necessary.
2. Learning skills can be developed if person constructs his/her own understanding of things and the world through learning and cognition by himself. Students' ability to effectively learn, gives them the opportunity to acquire knowledge and skills not only in-home economics education, but also in any field of life, in any context.
  3. In order to improve students' learning skills, the teacher needs feedback on the progress of the learning process and the acquisition of the content, the students' level of knowledge and skills.
  4. The main precondition for the development of learning skills is a constant and effective feedback in the context of the result (goal) to be achieved. The feedback is needed at all stages of the learning curriculum and provides answers to questions about the planning, monitoring, assessment of students' learning.
  5. Studies of the theme *Textiles* in Home Economics and Technology classes at Jelgava Secondary School N4 show that students' learning skills are in a good condition. Similarly, the answers to questions show some specific aspects of the development of the learning skills. The example of a feedback, given in the article, while learning the subject *How to Knit an Item*, provides a teacher with the information on how organize the learning process effectively for improving the student's learning skills.
  6. The students' answers to the questions reveal specific aspects of the development of learning skills for the teacher:
    - to improve the methodology of motivating the interest;
    - the students' ability to formulate and ask questions;
    - to improve the study materials, provide them with information about the possibilities for in-depth study of the substance;
    - to develop cooperation skills in order to give recommendations to classmates.

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# **Development of Professional Education and Career**



## Evaluation of Readiness for the Professional Development of Medical Practitioners in Terms of Distance Learning

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**Abstract:** Nowadays, distance learning provides various benefits like convenience, flexibility, ability to work together and communicate. In Latvia, the professional development of medical practitioners in terms of distance learning is an underdeveloped area, which would require more attention and fulfil one of the strategic objectives of education - promoting lifelong learning. In Latvia, professional development for medical practitioners is still based on traditional educational programme models, this trend is also observed in higher education medical studies. In order to develop the opportunities for medical practitioners to acquire professional development in terms of distance learning, it is essential to understand the readiness of individuals for such a form of study. Readiness in scientific literature is extensively studied in search of the best tool for its evaluation. To acquire knowledge, skills and competences in distance learning studies, participants of the courses need self-motivation, commitment, information, and communication skills. All of these characteristics and skills can affect the effective acquisition of the course. Assessment of distance learning readiness can help distance learning course developers provide the best experience for course participants, anticipate problems and ensure continuity in learning. Taking into account that the author is currently working on developing and implementing distance learning courses for medical practitioners in professional development, assessment of the readiness will help to identify problems for the successful development and implementation of the course. The aim of the study was to assess the readiness of medical practitioners for professional development in terms of distance learning, identifying the factors influencing distance learning. The selected research method is quantitative – a survey. The questionnaire was taken by 247 medical practitioners. The questionnaire included several issues for assessing readiness: motivation, time planning, readiness to use technologies, as well as respondents' experience and attitude to distance learning. The study revealed that distance learning is important and necessary for the professional development of medical practitioners, which is associated with economic benefits. The readiness of medical practitioners is high, 81 % of the respondents have good technological skills and 84 % of the respondents have a high level of motivation to learn. The influential factors the respondents mention in terms of mastering distance learning are as follows: 18 % of time planning problems and 75 % of English language skills. Interactivity, which includes video, audio, self-testing tasks and clinical simulations, is important when developing distance learning courses. Lack of time and time planning are one of the factors influencing distance learning, therefore, student support and advice is an important condition for the realization of any distance learning course.

**Keywords:** adult education, distance learning, e-studies, lifelong learning, readiness, digital tools.

### Introduction

In many countries of the world, distance learning has established itself in the educational system, including the medical field. Medicine is the field in which, in addition to theoretical knowledge, critical thinking and experience is essential, it is therefore necessary to prepare teaching materials in such a way that these competences and knowledge are also acquired in the form of distance learning. Therefore, often in the study process, distance learning studies are combined with intramural studies (Smith, Passmore, Faught, 2009; Bullock et al., 2013; Clark, Frith, 2013).

The concept of distance learning is used in many ways - open studies, e-studies, online learning, and virtual studies; more often it refers to a method that supplies educational information through the Internet. This kind of learning provides different but, at the same time, a better learning experience (Bates, 2016). At present, Massive, Open, Online Courses - MOOC, which was first used in 2008, has gained enormous popularity. The University of Manitoba in Canada offers such a course, which is open and accessible to everyone. The largest number of participants registered for this course was 250,000. In Europe, around 1,000 MOOC courses were available in 2015 (Bates, 2016). In literature, distance

learning involves a variety of strategic learning and technology (Mercado, 2008), which plays an important role in education.

Timeliness of the topic is due to the fact that education in the 21<sup>st</sup> century is marked by issues such as globalization, human migration, information transformation in society, increased competition in the economy, the impact of information and communication technologies affecting all aspects of life, including education (Ozgur, Kocak, 2016). Education has played a major role in recent years not only in improving the productivity of the national labour market, but also in helping individuals improve their employability in rapidly changing socio-economic conditions, and thus the role of distance learning in vocational education is very topical and necessary (Open and Distance..., 2002). Today, attention is focused on a flexible learning environment, professional development programmes and interpersonal training in order to ensure that the healthcare workforce is properly trained to practice in the field of healthcare (Continuing Education..., 2011).

It is important to emphasize that the adult student community is rather heterogeneous. In general, they differ in the following characteristics from the traditional student community (Merriam, Cafarella, Baumgartner, 2007; Knowles, Holton, Swanson, 2015): a high level of motivation, characterized by the fact that he or she decides to continue his or her education consciously and is very motivated to achieve results; the focus on learning, characterized by the desire to acquire knowledge and skills that can then be used directly and indirectly in their profession; life and professional experience, which tend to be actively involved in the learning process; willingness and readiness to think independently and critically, thereby favouring independent learning activities; a wide range of responsibilities and a lack of time that can affect the learning process. These qualities are a positive aspect for an adult being able to study in terms of distance learning (Pozdnyakova, Pozdnyakov, 2017). Knowledge in distance learning includes two very closely related, but different parts (Bates, 2016): content that includes facts, ideas, principles, procedures; skills required to gain knowledge - communication skills, ability to study independently, ethics and responsibility, teamwork and flexibility, thinking skills, both critical and problem-oriented thinking, digital skills, knowledge management.

Several factors, such as self-motivation, cooperation with the teaching staff, colleagues, technical skills, learning style, time planning skills and access to technologies can affect the readiness of medical practitioners for distance learning (Hart, 2012; Vasilevska, Rivza, Bogdan, 2017). Authors such as D. Warner, G. Christie, and S. Choy (1998) discuss three aspects of readiness for distance learning: (1) the benefits of distance learning as opposed to an intramural form of study; (2) students' confidence in electronic communication and competence in the use of computers and the Internet; (3) the ability to engage in independent learning (Hung et al. 2010). The author M. McVay (2001) developed a broad tool for assessing readiness that focused on student behaviour and attitude in order to clarify the concept of readiness. This tool was used in the study by author P.J. Smith (Smith et al., 2003), which confirmed two important parts for readiness – “e-learning comfort” and “self-governance”. In his publication, the author C.A. Mercado (2008) provides a scale for distance learning assessment readiness, which includes several parts: technology provision, student and teaching staff technology literacy, the attitudes of the student and teaching staff towards studies and organizational readiness. The scales for distance learning assessment readiness are closely related to distance learning quality criteria and qualitative study course process (Pawlowski, 2007; E-learning Quality..., 2008; Poljanowicz et al., 2014).

Distance learning is a proven and necessary teaching and learning method that requires interdisciplinary cooperation between teaching staff and IT teams. A well-designed and implemented online course may remain useful for many years, but it needs to be improved, adapted and updated, and any such improvements and updates should be included in the academic hours of the teaching staff (Poljanowicz et al., 2014). Distance learning allows students to adapt to different learning activities, the need to make decisions independently, control their learning activities, choose the appropriate learning pace; therefore, students' readiness to learn distance learning becomes an important part of the assessment for both distance learning participants and developers of distance learning courses (Hung et al., 2010).

The aim of the research is to assess the readiness of medical practitioners to acquire professional development courses in terms of distance learning, identifying the factors influencing distance learning.

## Methodology

To assess the readiness of medical practitioners, a quantitative research method has been selected. Any medical practitioner who has a medical education could take part in the questionnaire. In order to achieve the aim of the study, the readiness of medical practitioners was assessed from several aspects: (1) technology skills and provision, (2) motivation to learn, (3) digital teaching tools for distance learning and previous experience. The questionnaire was prepared electronically and sent to the personal emails of medical practitioners available on the website of the Ministry of Health of the Republic of Latvia; emails were also sent to health institutions. In total, about 1200 emails were sent with an invitation to participate in the questionnaire. The study was attended by 247 medical practitioners aged 21-74. The research data were obtained in the period October 30<sup>th</sup> through to November 10<sup>th</sup>, 2017. The results obtained are summarized using the Statistical Package for the Social Sciences - SPSS version 20.0. The results are summarized in tables.

## Results and Discussion

The study was attended by 247 medical practitioners aged 21-74. A large number of medical practitioners were aged 41-55 (49 %), while 15 % of respondents were between the ages of 56 and 74, especially in the group of doctors, 20 %. This tendency reflects the problem characterized for Latvia – a large number of healthcare sector workers are at pre-retirement age, and there is a lack of young healthcare sector workers, which in turn can affect healthcare as a whole, as well as readiness for the use of new technologies (Par pamatnostadnem..., 2005).

Of the respondents who participated in the study, 52 % were nurses, 23 % physician assistants, 22 % doctors and 3 % other medical practitioners. Summarizing the results of the need for distance learning, 95 % of respondents believe that distance learning is important and necessary for professional development. Respondents associate this with an economic benefit, which in turn accounts for 40 % of time saving and 19 % of financial saving. The result can be explained by the workload, responsibility for continuity of care and other personal factors of medical practitioners.

The study included medical practitioners from different areas of practice in the regions of Latvia (Table1). The main criterion was the distance from the capital, which is mentioned as one of the factors contributing to distance learning in the literature, saving time and reducing the cost of learning. Such a criterion is important in this study, as most of the professional development training courses take place in Riga, which makes it difficult to attend courses and increases the cost of the course.

Table 1

**Motivation for Studying by Distance Learning in Relation to the Distance from the Capital to the Place of Practice (%) (n=247)**

Characterization of the practice place distance	I am motivated for distance learning				Total Distribution
	Fully agree	Agree	Partly agree	Disagree	
Riga Region	20	15	7	4	47
Regions outside Riga (< 50 km)	7	4	2	0	13
Remote rural and city region (> 50 km)	20	16	4	1	40
<b>Total distribution among assessments</b>	48	36	12	4	100

When analysing the data, there are no significant differences between distance and motivation to study (Table 1), since summarizing “Fully agree” and “Agree” within the Riga Region, 35 % of respondents are motivated to study in terms of distance learning, while 36 % of respondents in remote rural and urban areas (> 50 km) are motivated to study in terms of distance learning.

Overall, the result shows that 84 % of respondents are motivated to study in terms of distance learning, regardless of the region in which they live and practice. Also, the result may be related to the fact that in the outermost regions of the rural and urban areas, professional development training courses for medical practitioners are provided. In contrast, analysing open question entries shows the importance of distance in professional development. Quotes from the respondents' entries:

Respondent 1: “Distance learning must be developed. It would be especially useful if the 2-hour association meetings would be recorded and made available online at least for a price, because going to such a session, which takes place in Riga, the whole day is spent, but the benefit is 2 further education points”.

Respondent 2: “Taking into account that medical practitioners are busy working at multiple workplaces, distance learning would be a great opportunity to study for those medical practitioners who cannot attend an intramural form of study (due to different everyday conditions: multiple jobs, children and lack of time)”.

Summarizing all the criteria above for the technology skills of medical practitioners for distance learning (during the analysis, the assessments “Fully agree” and “Agree” and the opposite, “Partly agree” and “Disagree” were summarized), the study shows that a total of 81 % of respondents are ready to use technology for distance learning and the use of technology does not cause problems (Table 2). In order to successfully use the distance learning course and complete the tasks, a computer is required and the computer literacy, 90 % of respondents note that they are able to work with a computer, manage and attach files (criterion 1), which is one of the distance learning tasks for successful completion of the course. Despite the technical skills and readiness, the pedagogically useful features of a virtual environment include easy and structured ways of finding information and ways to communicate with colleagues and teaching staff, so the technical infrastructure needs to be strong and convenient to use (E-learning Quality..., 2008).

Table 2

**Assessment of Technical Skills of Medical Practitioners  
for Distance Learning (%) (n=247)**

Technology readiness criteria	Fully agree	Agree	Partly agree	Disagree
1. I am able to work with a computer, manage and attach files	62	28	10	0
2. I can log in to the course management system and join the course	42	25	23	10
3. I can make payments for the course through the online bank	83	13	3	1
4. I have the technical equipment for distance learning - computer, headphones, speakerphone, multimedia software	68	17	12	3
5. I have no problems installing the software and changing settings	38	25	28	9
6. I learn new information technology resources very quickly	39	32	26	3
<b>Total percentage distribution among assessments</b>	56	25	17	2

Often, distance learning materials contain various audio or video files requiring a computer, a speakerphone, multimedia software, and other devices. A majority of respondents (85 %) (Table 2, criterion 4) fully agrees and confirms that they have all of these devices to acquire distance learning courses. Nowadays, not only computers, but also mobile devices are used for distance learning, this kind of teaching method is called m-studies, which is outside the scope of this research, although nowadays more and more researches on the integration of m-studies in the educational process are found (Baran, 2014). The author focused the research on personal goals by developing a distance learning course for medical practitioners for professional development, and in this course mobile devices can only be an aid for insight into the course, but not for the full acquisition of it.

Assessing the technical skills of the respondents, for 37 % of the respondents more complex technical activities would be difficult, such as software installing and changing settings (Table 2, criterion 5), which means that access to the distance learning course should be simple, without having to install software and making any significant changes to the settings. Also, support and advice are important throughout the distance learning course.

Nowadays, the majority of on-the-job professional development courses for medical practitioners are for a certain fee, which means that distance learning is only available when the respondent is able to make an automated payment through an online bank. The result of the study shows that 96 % of respondents either fully agree or partly agree with the assertion that they are able to make standard payments via online bank (Table 2, criterion 3), which today is an integral part of the era of technology. Despite the fact that the readiness of technology is owned by 81 % of respondents (fully agree), 19 % of respondents find that technologies can make it difficult to fully participate in distance learning. Also, this result shows that distance learning will not always be an effective form of learning for everyone (Table 2).

Assessing and analysing learning readiness in distance learning Table 3 reflects a positive indicator, as 70 % of respondents are ready to learn, which includes communication and the use of various digital resources, but 30 % of respondents may, however, pose problems in distance learning courses, which, in turn, can affect the continuity of the course.

Table 3

**Readiness to Use Distance Learning (%) (n=247)**

<b>Readiness criteria for distance learning</b>	<b>Fully agree</b>	<b>Agree</b>	<b>Partly agree</b>	<b>Disagree,</b>
1. I am motivated to use distance learning.	48	36	12	4
2. I plan my work ahead to be able to fulfil the tasks assigned.	36	46	14	4
3. I am ready to spend at least 5 hours each week to take a distance learning course.	22	28	34	16
4. I am ready to send an email or to take part in conversations with people whom I have never met.	20	33	32	15
5. The presence of Readable materials is important for me.	51	38	10	1
6. I can learn from things that I see and hear.	43	49	7	1
7. I can study the distance learning course in English.	9	16	30	45
8. Quick feedback is important for me.	29	49	19	3
9. It is important to me that I am completely independent in the distance learning course.	41	42	15	2
<b>Total percentage distribution among assessments</b>	34	37	19	10

This inefficiency can be improved if the course developer uses widely available online study materials and they are in English, as 75 % of respondents note that they are partially or totally unable to acquire a distance learning course that includes English materials (Table 3, criterion 7), although the motivation to use distance learning (criterion 1) is high (84 %).

An interesting indicator is that 83 % of respondents want to be independent in the distance learning course (Table 3, criterion 9), which shows the trend if the distance learning course is done online, such as webinars, when the course participant has to be present at a set time in a certain place at a computer having an Internet connection, then such a distance learning course may not be used. The result is due to the aforementioned lack of time. Independent distance learning courses could be more effective in terms of how the course participant independently performs certain tasks step-by-step, reads, listens to audio and video lectures. This factor allows the course participant to take a distance learning course, regardless of time and place.

One of the readiness indicators is self-motivation, which includes the desire to learn and plan time for learning. A positive indicator is that 84 % of respondents have a high level of learning motivation (Table 3, criterion 1), and 82 % of respondents have the ability to plan their work ahead (criterion 2) so that they can complete the tasks of distance learning. Only 50 % of respondents (criterion 3) would be able to spend 5 hours per week on studying. This result could be related to an increased workload and lack of time, which are mentioned as factors influencing the acquisition of professional development.

Also, it is interesting to note that the research has a small number of respondents (5 %) who do not support distance learning but believe that medicine can only be acquired through on-site seminars,

lectures and practices. According of author I. Ivanova (2016), such an outcome can be explained by the individual's learning style, as well as a small share of adults who are not prepared to study independently, therefore special attention should be paid to the development of a support system for studies, the main objective of which is to promote the learning of the individual and thus the process of acquiring knowledge and actual competences in accordance with needs. Also, it must be understood that distance learning is not for everyone.

In the questionnaire respondents were asked to evaluate different digital tools (Table 4) and mark the tools important in distance learning. The results show that 59 % of the respondents expect interactive lectures including audio, video and self-testing tasks, 37 % expect online simulations and clinical cases from a distance learning course, while 36 % of respondents want to see videos appropriate to our practice, in Latvian. Such a result is related to the previously mentioned factor of access to courses in English, as well as different approaches to care in other countries.

Table 4

**Digital Material Priority in Distance Learning and Previous Experience**  
(%) (n=247)

Digital tools for distance learning	Tools required for distance learning	Previously used by respondents
Interactive lectures including audio, video and self-testing tasks.	59	39
Online simulations, clinical cases.	37	4
Video materials that relate to our practice, in Latvian.	36	12
Readable materials – pdf, Word, PowePoint.	32	62
Online lectures with the option to ask questions.	26	7
Recorded PowerPoint lectures.	26	54
Recorded online lectures.	22	27
Readable materials - online books.	21	26
Different links to other web addresses where additional information is available.	20	33
Online educational games, tests, flash cards and other tools, forums, discussion boards.	14	7
Various video materials (e.g. YouTube) in English, Russian, Latvian.	13	26

Today, the content of distance learning courses extends far beyond printed books, reaching an interactive multimedia environment that combines the separation between content, virtual environment and teaching, and between learning and interaction. In order to achieve the course objective, the course author needs to evaluate the necessity of each digital material and tool, and for which purpose the material is being used.

When assessing the experience of respondents using digital tools, it was found that the vast majority of respondents know and use many tools; it turned out that the majority (62 %) of respondents use readable materials in pdf, word or PowerPoint, which is one of the most commonly used resources for distance learning and e-studies; while 54 % of respondents have used recorded audio presentations that are currently available for the professional development of medical practitioners in Latvia as a distance learning tool (Table 4).

### Conclusion

The professional development of medical practitioners within distance learning is a supported form of study related to the high self-motivation of respondents, which in turn is associated with economic benefits, saving time and money. To ensure that the distance learning course for the professional development of medical practitioners is aimed precisely at the interests and wishes of the participants various digital learning tools should be included in the course. This would increase students' motivation and they would

not lose interest in the course. Also, learning a language is important. In order to effectively acquire teaching materials, they must be prepared in accordance with the language skills of the course participant, excluding foreign literature in the course, adding it only as supplementary literature. An interactive distance learning course, which includes various clinical simulations, can meet the expectations of course participants and increase the motivation for acquiring a distance learning course.

The readiness of medical practitioners is determined by technological knowledge and provision, but apart from that the course must be easy to use, and other non-technology-related criteria may affect acquisition of the course. In order to provide support to the course participant individually based on her or his needs, it is recommended that each course participant evaluates the readiness and anticipates future problems prior to the course visit. The respondents' overall level of readiness is high; there is a 70 % of respondents who have a desire to use distance learning, but they have poor technological skills. The lack of time and time planning is one of the factors influencing distance learning; therefore, student support and advice is an important condition for the implementation of any distance learning course.

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## Reasons that Stops Long-Term Unemployed Social Benefits Receivers from Returning into Labour Market

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**Abstract:** There is part of society that still misuse social security system and remain unemployed for very long period in a society where it is possible to find a job and be employed constantly. A variety of services and professional help is offered to long-term unemployed social benefits receivers to improve their social situation. The aim of the study was to define the reasons that stop long-term unemployed social benefits receivers to enter labour market even if economic and social situation in Latvia allows it. Forty-seven long-term unemployed social benefits receivers were asked to fill in the questionnaire to get information about reasons that stop them from entering labour market (what stops them from entering the labour market, what kind of help/service they need to do so). Twenty-eight of the respondents answered that there is no proper job offer in the market, fifteen of the respondents answered that they don't have adequate education to fit into modern labour market, four respondents mentioned that they have other obstacles that don't allow them to work. The results show that long-term unemployed social benefits receivers are not willing to enter labour market because of their inadequate self-esteem and inadequate wishes about the job and salary; many of them consider living on social benefits more profitable than spending long shifts at work.

**Keywords:** adult education, unemployed, long-term unemployed, career education, career services.

### Introduction

The aim of the study is to define the reasons that stop long-term unemployed social benefits receivers from being employed in a situation when there are many offers out on the labour market. Numerous amount of services is offered to them in order to get additional education, certification, training. All of them are registered at State Employment Agency and are eligible for free career counsellor sessions. The long-term unemployed social benefits receivers are able-bodied persons who have received monthly benefits for more than 12 times within the last three years and were jobless at least 9 months (Bickovska, 2016), and have been receiving social service support at least for the last six months. The level of unemployment varies in different regions of Latvia, in the 3<sup>rd</sup> quarter of 2017 Latvian unemployment rate constituted 8.5 % (In the 3<sup>rd</sup>..., 2017), which means that it is possible to be employed.

Reflecting on the idea that some people prefer to stay unemployed for years in a situation when it is possible to get a job seems a bit controversial. The reasons for being unemployed are something more than social circumstances, a lot of people suffer from untreated psychiatric illnesses, many people (especially in regions) are suffering from addiction problems (alcohol). Speaking about numbers of long-term unemployed it is important to remember that a lot of 'official' long-term unemployed are working illegally in order to maintain their status because of the social benefits they are entitled to with such a status (Scientific research..., 2014). When working with long-term unemployed social benefits receivers, professionals cannot separate those ones who are in need and those who are employed illegally, if they are attending some activities they are eligible to receive the service they want. Professionals, as part of a modern democratic society, need to provide the services even if they feel that clients are not truly interested in that.

According to the *Europe 2020 strategy* first priority is human resilience. That concept includes human capability to adapt and change according to fast changing environment – personal initiative, ability to cooperate – defining traps for personal development. According to that plan the main working areas for government and institutions (among many others) are providing employment and income, lifelong education, promoting creative and process understanding individual (Europe 2020..., 2010). Not only socially-economic situation motivates individuals to look for a job, but they are also willing to get the approval that they can manage different tasks and bring joy to other people (Strebler, Bevan, 1996). Being unemployed and not successful in that field for many years brings negative changes to personality that will affect the reasons for staying unemployed and individual's ability to think about it critically.

Another reason might be that nowadays employers are looking for qualified workers more often, a lot of long-term unemployed social benefits receivers are not eligible for that; since technologies are taking huge part of our lives some of the long-term unemployed are not able to fit into the new reality and gain new skills. Most of the long-term unemployed social benefits receivers are not connected to the real labour market that exists nowadays – to the tools and methods they need and the amount of money they can earn spending at least 8 hours at work (Supule et al, 2015).

Different institutions that are involved in work with long-term unemployed social benefits receivers (especially those ones providing educational activities) should take into consideration adults' needs in education, those adults who are suffering from negative impact for years. Adults need education not only in terms of their unemployment, but also as part of a lifelong education concept - lifelong education motivates individuals to acquire new skills, knowledge and opportunities that can be used not only in work life, but also improve their life skills in general (Draft UNECE Strategy..., 2004).

The main goal of the education process is the process itself, but not the result - this D. Kolb's idea, as a part of experiential learning theory is the best way of describing education for long-term unemployed social benefits receivers (Kolb, 2015). Adults learn, firstly, through their experience, but educators need to take into consideration that for the last few years their experience was, mainly, negative. The educator needs not only to be a professional in his field, but also a good therapist in order to help long-term unemployed social benefits receivers to start looking at themselves and their environment in another way.

Every change starts with inner motivation, but long-term unemployed social benefits receivers lack it, they cannot get some special training for it in Latvia. When speaking with the respondents, most of the time they mention only outer motivation – bigger salary, better work condition, but none of them mentioned inner motivation that relates to personal development aspects (Koen, Klehe, Vianen, 2013). Living in modern society, we should accept idea that not everybody wishes to work, since there are opportunities to exist on social benefits.

## Methodology

A survey developed by the author consists of 3 questions which represent respondents' attitude toward themselves, their opportunities and reasons to get employed or staying unemployed, what kind of services they need to help them. The participants were also asked to specify their gender, age, period of unemployment and level of education.

Questions respondents were asked to answer:

1. What stops you from getting employed?
2. What kind of support do you need to enter labour market?
3. Have you ever used professional help (career counsellor, social worker, and therapist) to get employed?

The current empirical research was carried out in one of Riga Social Service departments. 47 long-term unemployed social benefits receivers took part in this research. The participants of research were the following: 36 females (76.6 %) and 11 males (23.4 %) between the age of 23 to 59 (Mean (M) = 40.88, Standard Deviation (SD) =10.1).

## Results and Discussion

Being unemployed for many years in a row brings significant changes to an individual's personality that can't be cured during some short intervention, in order to be treated individual needs to receive a long-term therapy. It is not possible to receive it for free (from local municipality of any kind of institutions), so it means a lot of money – it is a barrier for long-term unemployed social benefits receiver. Obviously, nothing starts from therapy, individual needs to be motivated to change his/her life but living in need and self-destructive way for many years, there is quite a low possibility of having strong inner motivation. Working with these type of clients, professionals should be extra patient and full of energy and willing to help, but the important thing is to remember that you can't help those who are not seeking help – it should be a motto for everyone who works with people.

The background of the 47 respondents, who are long-term unemployed, shows that most of them have secondary education (36 respondents), 7 of them have higher education and only 4 of them have primary education. Unemployment periods vary starting from 24 months to 68 months.

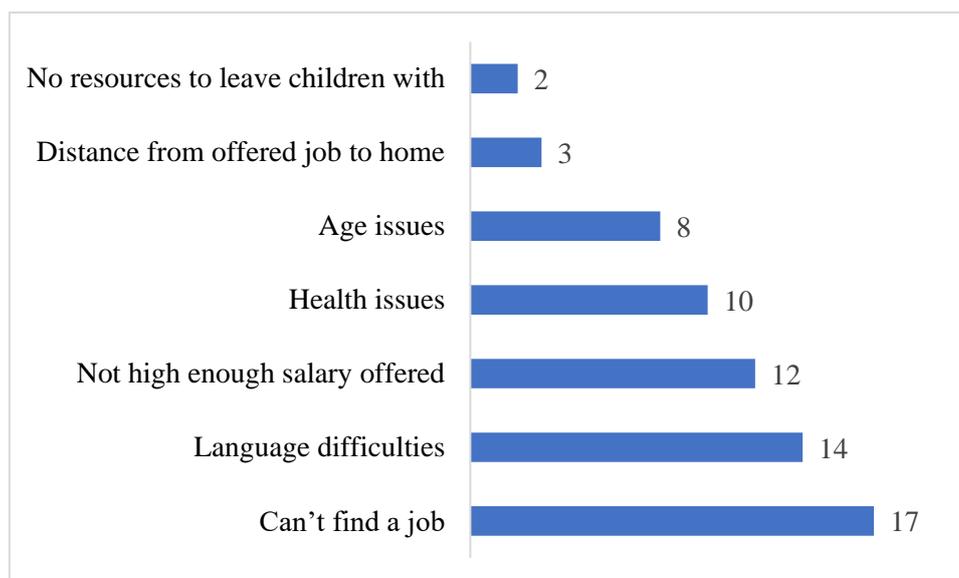


Figure 1. Reasons that stops from getting employed (n = 47).

According to the Figure 1, answering the first question “What stops you from getting employed?” 17 respondents replied that they can’t find a job, 14 replied that they can’t get employed because of a lack of language skills (it is obligatory to know Latvian language in Latvia in order to get employed, employee need to have certificate that proves knowledge – for many middle aged Russian speaking inhabitants it is a problem); 12 respondents mentioned that the salary that was offered to them is not high enough for leaving social benefits system and move forward onto independent life (that’s the sign of inadequate self-esteem, because most of the respondents have secondary education and no professional qualification). Ten respondents mentioned health issues, health services are paid by the clients themselves in Latvia, not only fee is a reason that stops clients from visiting health care institutions but also long queues. It is almost impossible to get to the doctor you need in a few days’ time or at least weeks. Normally, to get an appointment the average waiting time would be 1 to 2 months. Especially expensive are dental services – those are not available for long-term unemployed social benefits receivers. Health issues may differ in it is nature – one part of them without proper treatment may transfer into disability, another can be cured. Eight respondents (all women) mentioned that their age is the reason that stops them from being employed – they were rejected because they are at pre-retirement age. Only 3 people mentioned that the job they were offered was far away from the place they are live, that might be a reason only in case of a very specific job and qualification, in other cases there are a lot of job offers all around Riga. Two women mentioned that the reason of being unemployed are children or no relatives to leave the children with. This reason might be real, for it might take about 2,5 to 3 years to get a place at kindergarten for a child in Riga.

Answering the second question, “What kind of support do you need to enter labour market?” 17 respondents mentioned that they need additional education/training (9 women, 8 men), 15 respondents (10 women and 5 men) mentioned that they need additional language training (in Latvia it is the case of a lot Russian speaking inhabitants who can’t get employed without knowing Latvian language), 4 respondents (only women) mentioned that they need therapy (psychologic sessions), two respondents (9 women) mentioned that they need additional babysitting service (kindergarten or alternative). All these answers support the idea that all that long-term unemployed social benefits receivers consider as needed is partly provided by local government (education and training (language training as well) are provided by State Employment Agency, therapy is possible to get via Social Service, for babysitting there are few options – get a place in kindergarten, get financial subsidy for private kindergarten or for private babysitter); only health care support is not provided for free from any kind of organization. Most of the reasons that stop long-term unemployed social benefits receivers from being unemployed can be solved, so it is possible to change reasons or even to prevent if intervention is done at the early stages. Latvian system and organizations that are involved into support services for long-term unemployed are not a miracle and are not created to help everyone immediately, but they offer quite a range of possibilities for unemployed to get back onto labour market sooner or later.

Per the research made in 2007 “Reasons of unemployment and social exclusions in Latvia” (Bezdarba un socialas..., 2007) more stress should be placed over State Employment Agency in order to provide more opportunities for unemployed to educate, as we can see now, in 2017, 10 years later variety of services provided by State Employment Agency for different target groups has grown at least twice since then.

Answering the third question all respondents mentioned that they at least once used professional support, respondents have mentioned such professional as social worker, career counsellor, psychologist, State Employment Agency worker.

To sum up, average long-term unemployed is quite acquainted with all the services and system in general that are created for them, they are using it, or at least are trying to do everything to stay in that system. When speaking about long-term unemployed social benefits receivers the first thing to remember is financial profit they prefer to stay in that kind of situation because they can get more social benefits and more financial support, a lot of them are working illegally.

Of course, a big part of this group is truly unemployed for many years in a row and is trying to survive, they have a variety of complex problems, a big part of them is mental, that special state of mind that stops them from moving forwards. They were managing their marginalized career for years and they need a very strong will to change it and a very good team of professionals that would be able to help them, because it is not only a job for social worker or career counsellor, all of them should be involved in a process and only a team work can bring visible result.

Strong will and inner motivation is a key to success. According to L. Shulman “Motivation is one of the crucial preconditions for learning” (Shulman, 1987). All of the respondents have attended different types of educational programs (re-education programs, additional language or professional courses), but they continue to remain unemployed, which shows that:

- educational programs are not effective if a person is not able to get employed after attending it;
- individuals do not have any inner motivation in order to use their new skills and knowledge for job searching and continue to remain unemployed, so they attend courses only under the pressure of State Employment Agency.

Motivation is the hardest aspect to change and to influence for professionals, there is not a big opportunity for long-term unemployed social benefits receivers to change their lifestyle and get back to labour market, to change their social life and relationships. It is widely known, struggle in a job context impacts not only the job itself – it brings complications to relationships with family, with themselves; brings severe changes to personality itself. Few theories explain motivation phenomenon and how to affect it, most of them are highly cognitive, so it can be very frustrating (Krumboltz, Levin, 2004) to use them in work with long-term unemployed social benefits receivers since they are mostly acting according to behavioural theories.

According to M. Jahoda’s theory, long-term unemployed social benefits receivers can be very satisfied with their situation and life rhythm (Jahoda, Lazarsfeld, Zeisel, 2017). They are satisfied with their lifestyle because they do not have that strict structure of life that is created by job and other business timing. Typical long-term unemployed feels the time differently than average working person – they are not able to arrange many appointments on one day, in general, their time is flowing much slower than for others. Another reason of being unemployed is their wish to stay in the same state and live the life as they prefer and able to manage.

## Conclusions

The reasons that stop long-term unemployed social benefits receivers are different, but none of them is not changeable. Most of the time it’s some deep problems that can be stated in few words and need treatment and constant supervising, some of the times long-term unemployed social benefits receivers are working illegally and are just not interested in changing their lifestyle, but there are some aspects that might be used in future researched or direct work with clients:

- long-term unemployed social benefits receivers are using all possible services – State Employment Agency services, social worker consultations (and Social service in general),

career counsellor consultations as they still remain unemployed and that means that all these services haven't reached their goal;

- long-term unemployed social benefits receivers mentioned quite a few services that they need in order to re-enter labour market, but all of these services (except health service) are available right now and are free of charge - that means that they are not able to use resources and information they are given or are not interested in it;
- all the reasons long-term unemployed social benefits receivers mentioned as their reasons staying at the same state are not critical and can be solved with a help of professional or even without it, having low unemployment rate and variety of services (additional education, treatments, career counselling) it is possible to find a job if it is high priority for individual;
- when working with long-term unemployed social benefits receivers it is obligatory to remember that for some of them their lifestyle is a state of mind for them and they are simply not willing to change it, but still are trying to look for some reasons that they would be able to present to society;
- the author considers one of the main but unnamed reasons of staying unemployed is a lack of inner motivation to move forward and bring changes to life.

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## Guidance Model for Promoting Self-Directed Career Decision-Making by Secondary School Students

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**Abstract:** The present research focuses on a problem for secondary school students – their inability to make crucial decisions on their future profession as well as to understand themselves, their interests, abilities and needs. Many secondary school graduates do not know what profession to choose. The aim of the research is to develop a guidance model for promoting self-directed career decision-making by secondary school students as well as to approbate the model and perform an expert evaluation of the model. The approbation of the model was done at two secondary schools in Latvia's regions. Thirty-two school pupils were involved, of which 16 were students from grade 12 from each school. Individuals investigate own interests, abilities and talents, sets learning and career goals, plans own work and does reflection on their own initiative in self-directed learning. During this process, students build up their abilities and their need to self-guide increases; their personality grows, and the students become more active and assume a greater responsibility for their decisions related to their learning and careers. The students, involved in the experimental approbation of the guidance model for promoting self-directed career decision-making, acquired a new knowledge, identified their abilities, interests and values, became self-confident and got a clear vision of their goals; their internal motivation to make a responsible and thought-out career decision increased. The guidance model is intended for career counsellors, pedagogues-career counsellors and class teachers working with secondary school students.

**Keywords:** self-directed learning, career decision-making, model, career counselling, school education.

### Introduction

The authors of the research, working in pedagogy in the field of interest education for more than 20 years, often faced a problem for secondary school students to make a crucial decision regarding their future profession as well as to understand themselves, their interests, abilities and needs. During the last secondary school semester or even the last month of studies, very many secondary school students did not know what speciality to choose for studies or work. Regarding K. Balcerė (2013) studies only less than 2% of them used career counsellor advice to make a good career decision. At present, there is a situation at schools that individual consultations are almost unavailable for every student because a career counsellor is available only for a few hours or days a week. A career counsellor is only available at group events and during lessons, during career week, or during parents' meetings. One career counsellor per six or seven hundred students is unable to provide sufficient assistance, to get into details regarding every student's progress towards making a career decision. Therefore, the authors seek for ways to provide support for any school student in making a career decision, so that the student can do it through self-guidance. Being aware of this problem, caused a desire and motivation for the authors to explore opportunities for students to cope with a problem to make a career decision and make a professional choice, investing their own time and efforts and using a career counsellor's guidance from a distance.

The aim of the research is to develop a *Guidance model for promoting self-directed career decision-making for secondary school students* (hereafter referred to as *Guidance Model*) as well as to approbate the model and perform an expert evaluation of the model.

### Methodology

The research questions included: to find out theoretically what self-directed learning is and how to encourage it for secondary school students; what kind of guidance model is necessary for a secondary school student's self-directed career decision-making.

Methods of the research included: theoretical study, analysis of scientific literature and reflection of authors' personal experience and a Friedman's test are used.

The Guidance Model is developed on the basis of theoretical studies on self-directed learning and theoretical models and approaches in decision-making, as well as based on the authors' experience of working with youngsters.

The Guidance Model was developed at the Institute of Education and Home Economics, Latvia University of Life Sciences and Technologies within the master study programme Career Counsellor. The approbation of the model was done at two secondary schools in Latvia's regions. Thirty-two school pupils were involved, of which 16 were students from grade 12 from each school. The students were asked to use the guidance model for making a career decision, using the model's ten steps to complete all tasks and in parallel to use a career counsellor's help via e-mail or Skype, as well as, if necessary, face-to-face consultations. The guidance model was evaluated by five competent experts and their ratings were subjected to statistical analysis using a Friedman's test. The experts were asked to evaluate the Guidance Model by examining it against the following seven criteria: (K1) Self-directed learning is applicable for secondary school students. (K2) Decision-making models (so far developed by other authors), which are included in the Guidance Model, contain useful information for secondary school students. (K3) Factors influencing career decision-making correspond to secondary school students' age group. (K4) Decision-making difficulties, mentioned in Guidance Model, are adequate for secondary school students. (K5) Career counsellor's guidance types are enough to achieve the purpose of the Guidance Model. (K6) 10-steps self-directed actions are enough to achieve the purpose of the Guidance Model. (K7) The Guidance Model as a whole is good enough to promote the skills to make independent, responsible and informed career decisions for secondary school students. The experts were asked to evaluate the given criteria in five-step scale: strongly agree (5), partially agree (4) difficult to judge (3), partially disagree (2) disagree (1).

### **Theoretical Framework for Self-Directed Learning**

Various authors give different interpretations for the term self-directed learning. M.S. Knowles (1975) points out that self-directed learning is a process in which individuals take the initiative without the help of others in diagnosing their learning needs, identifying and formulating their learning goals, identifying resources for their learning, choosing and implementing a learning strategy and evaluating learning outcomes. M. Gibbons (2002) believes that self-directed learning involves building up one's knowledge, skills and achievements or contributing to personality growth, which is achieved through one's own efforts or activities by means of any technique, under any circumstances and at any time. Latvian scientist D. Liegieniece (2002) has called self-directed learning a form of studies in which adults take responsibility for planning their work, applying their knowledge and assessing their work.

Historically, the first attempts to define self-directed learning were dated about 170 years back. In that period in America G.L. Craik (1872) referred to and researched self-education attempts done by various individuals. In Great Britain, S. Smiles (1859) published a book entitled *Self-help*, in which he popularised his concept of personality development. As time passed, such research studies intensified, while the major research contributions were made by C.O. Houle (1961). The scientist interviewed 22 individuals and classified them into categories based on the reasons why they educated themselves. His three classifications were goal-oriented, activity-oriented, and learning-oriented. C.O. Houle's work was continued by his student, a Canadian researcher, A. Tough (1979). In his dissertation, he analysed self-directed learning activities that were summarised in a book entitled *Adult Learning Projects*. At the same time, M.S. Knowles (1975) published a work entitled *Self-directed Learning* that gave various definitions and assumptions related to extensive research, for example: self-directed learning assumes that as an individual grows, the individual's abilities and need to direct him/herself increases; an individual's experience is a good learning resource; an individual learns what is necessary to achieve his/her life goals. R. Hiemstra (1994) considers that during self-directed learning, motivation forms from internal stimuli such as the need for self-respect, achievements and curiosity.

H.B. Long (Long, Stubblefield, 1994) with his colleagues established an annual International Symposium on Self-Directed Learning. The Symposia have spawned many publications, research projects and theory building efforts by researchers throughout the world (Hiemstra, 1994). As the role of self-directed learning increased, the diverse aspects of it have been researched by R.G. Brockett and R. Hiemstra (Brockett, Hiemstra, 1991), R.S. Caffarella and J.M. O'Donnell (Caffarella, O'Donnell, 1987), P.C. Candy (1991), S. Merriam and R. Caffarella (Merriam, Caffarella, 1991) and S.D. Brookfield (Brookfield, 1985, 1994).

The following things are known about self-directed learning by R. Hiemstra (1994): individual learners can become empowered to take increasingly more responsibility for various decisions associated with the learning endeavour; self-direction is best viewed as a characteristic that exists to some degree in every person and learning situation; self-direction does not mean all learning will take place in isolation from others; a self-directed learning participant is able to transform a variety of situations affecting both their knowledge and studying skills; self-directed study can involve various activities and resources, such as self-guided reading, participation in study groups, internships, electronic dialogues, and reflective writing activities; effective roles for teachers in self-directed learning are possible, such as dialogue with learners, providing resources, evaluating outcomes, and promoting critical thinking.

### **Promoting Self-Directed Learning by Secondary School Students**

Self-direction in learning can be learned and can be taught. J.A. Regan (2003) recommends to find out what motivates students to turn to self-directed learning. Students need to be motivated and encouraged to discover their own motivations.

The key responsibility of a career counsellor is to help students to develop their self-directed learning process and their independent decision-making process. In the opinion of K. Ramnarayan and S. Hande (Ramnarayan, Hande, 2005) the students who are accustomed to fully relying on the teacher's complete management might have problems to get used to their responsibility in the ongoing learning process. Successful self-directed learning requires that students have certain characteristics and behaviour. H. Okabayashi and E.P. Torrance (Okabayashi, Torrance, 1984) defined corresponding abilities for the characteristics: ability to be aware of the most significant and important information in an assignment; ability to find sources of information; ability to think independently and follow instructions and rules; ability to be aware of and accept responsibility for learning; ability to take the initiative in starting an assignment. Students who possess such abilities have self-awareness. According to T. Smith (2017) they understand how they learn and are aware of a learning outcome they want to achieve. I. Soika (2017) emphasize the importance of dialogue and describe the developmental stages which prevailing in dialogue of student's career guidance in secondary education. After examining the promotion of self-directed learning, K. Brouse (2007) recommended pedagogues to encourage self-direction in students through: giving assignments to the students, in which they examine things they are interested in; encouraging the students to express their opinions; allowing the students to work at their own pace; viewing things from different perspectives; doing reflection on their learning pace and write down their learning outcomes; giving multiple choice assignments to the students.

In Canada, researchers from the University of Waterloo have developed a *four-step method for self-directed learning* (Self-Directed Learning..., 2016): 1) *Readiness for learning*. The readiness is indicated by the facts that the student is autonomous, self-organised, disciplined, ready to communicate effectively, able to engage in a constructive assessment and reflection, and the student possesses certain skills in managing and planning the time and resources and in analysing and examining the problem. 2) *Setting goals*. Researchers recommend that the student discuss the goal with a career counsellor. At the same time, the teacher and student jointly decide on the activities to be done, the deadline, the resources needed for every activity and the need for meetings. 3) *Engagement in learning*. The student has to be aware of him/herself as a participant in the self-directed learning process. The student has to understand his/her needs as a self-directed student. The student has to answer the following questions: What are my needs and what learning approach is necessary? The student has to become a motivator for him/herself. 4) *Evaluating learning outcomes*. The student has to be able to engage in self-reflection and assess the learning outcome. In case of need, the student has to consult a career counsellor and take the advice. To assess his/her own work, the student has to ask him/herself the following questions: Am I able to freely use the information acquired? How do I know that I have learnt what I needed? At what moment do I need self-reflection and when do I need to visit a career counsellor for advice?

### **Theoretical Models and Approaches in Decision-Making**

J.A. Athanasou and R. Esbroeck (Athanasou, Esbroeck, 2008) distinguish several kinds of decision-making models: normative models define what individuals should do to make a decision based on theories; *descriptive models* examine the ways individuals make a decision in real contexts, as well as the difference

between the ideal, normative decision-making process and real-life situations; *prescriptive models* prescribe what individuals have to do, taking into consideration what the individuals can do to make a decision.

For making a career decision, L.K. Mitchell and J.D. Krumboltz (Mitchell, Krumboltz, 1996) suggest a seven-stage **DECIDES** model (define, establish, clarify, identify, discover, eliminate, start), which is one of the normative models and it involves the following steps: define the problem, be aware of the need for making a decision; establish an action plan, correct the decision; clarify values, examine self-observations and worldview generalisations; identify, seek for alternatives; collect information, discover probable outcomes; assess the information, eliminate alternatives; start action: plan and perform the six above-mentioned decision-making steps (Gikopoulou, 2008).

At the Career Centre of the University of Florida, a group of researchers developed the **Cognitive Information Processing (CIP) Approach** by combining theory, practice and research; the approach is one of the descriptive models. The approach developed by J.P. Sampson, R.C. Reardon, G.V. Peterson and J.G. Lenz (Sampson et al., 2004) is based on a three-level pyramid; self-cognition and the awareness of professions is placed at the lowest level; decision-making skills are at the second level (that includes five cognitive information processing skills, known as the CASVE cycle – communication, analysis, synthesis, valuing and execution). Execution is placed at the top level of the pyramid, which involves metacognition - thinking about our thinking. This is the stage for verifying and evaluating the thinking process, in which one can ask the following questions: How does it function? How should I improve it? What should be enhanced?"

One of the prescriptive models is the **PIC model** (pre-screening, in-depth exploration, choice); its authors are I. Gati and I. Asher (Gati, Asher, 2001). The scientists made the decision-making process easier by dividing it into three steps: 1) pre-screening – its purpose is to select potential career alternatives based on personal priorities; this results in up to seven potential options; 2) in-depth exploration – it aims at choosing a few options (3-4) being the most appropriate for the client from among the options selected at the previous stage; 3) choice – the purpose is to choose the most appropriate options, which is based on a detailed comparison of the most appropriate options. The authors preferred using the ideas of the mentioned models in developing their guidance model for promoting self-directed career decision-making by secondary school students. The author chose these models to use for creating the new Guidance Model, because all of them include elements such as access to information, self-exploration, overcoming obstacles, priority setting and the examination of several options.

### Decision-Making Problems

Individuals possess different abilities to make a career decision. A number of authors have sought theoretical explanations of why individuals have problems making a career decision. The reasons mentioned by them are as follows: D.E. Super's (1963) vocational maturity, J.O. Crites' (1978) career maturity, D.E. Super's (1953) one's self-image, D.E. Super's and M.L. Savickas' adaptability (Super, 1983, Savickas, 1996, 2005), A. Bandura's (1989) self-efficacy, J.L. Holland's vocational identity (Holland, 1985, 1994), R.W. Lent's and G. Hackett's decision-making and self-efficacy (Lent, Hackett, 1987), J.D. Krumboltz's (1983) beliefs, and dysfunctional career thinking of J.P. Sampson, R.C. Reardon, G.W. Peterson and J.G. Lenz (Sampson et al., 2004). G. Ford (2002) mentions self-esteem and satisfaction with oneself as the key abilities for making a career decision. Raising self-esteem in the counselling process could build up the ability to make a decision. Some clients express their doubts about being aware of their strengths and weaknesses.

T. Nakao (Nakao, Mitsumoto, Naswiva, 2010), a psychology and pedagogy scientist, has proved in his research that getting familiarised with oneself reduces the problem of making a choice. In situations where an individual has to choose from among similar options, the individual uses his/her knowledge of him/herself to facilitate decision-making.

By the opinion of G.S. Niles and J. Harris-Bowlsbey (Niles, Harris- Bowlsbey, 2002), many youths lack the ability to make a career decision owing to the fact they lack career maturity. To make a better career choice, the youth have to: develop a positive attitude to career examination and planning, learn how to acquire information about themselves and professional opportunities and learn how to make a career decision.

The task of a career counsellor is not to guide a client towards the right decision but to help the client to cope with the problem to make a decision. According to I. Gati and N. Levin (Gati, Levin, 2014). Several aspects complicate making a career decision, for example: too large number of options to choose from; factors to be taken into account when choosing a profession, e.g. work conditions, family circumstances, the duration or place of studies; uncertainty about the profession and oneself and if a compromise is necessary in career decisions; social barriers – imaginary or real – that influence a decision; most clients are afraid of serious and important decisions and therefore worry about making a “wrong” decision.

Summarizing several researcher’s thoughts about the career decision-making difficulties it can be concluded that a career counsellor has to provide support for young people in vocational choices, encouraging them to explore themselves, their abilities, skills, interests, traits; a career counsellor has to activate the cognitive training and to build up the youth’s resources with regard to their individually preferred professions. It is necessary to ascertain young people's social environment, the barriers and influencing factors which could create internal conflict in decision making or cause pressure from outside. The youth have to be encouraged to take responsibility for their decisions as well as given references about information sources to get familiarised with the profession.

## **Results and Discussion**

### **Development of the Guidance Model for Promoting Self-Directed Career Decision-Making**

The guidance model was developed with the purpose of facilitating a self-directed career decision by secondary school students. The Guidance Model for promoting self-directed career decision-making (Figure 1) was developed based on theoretical knowledge about self-directed learning, problems to make a decision and career counselling specifics for the secondary school students, as well as on an analysis of the data of main problems and difficulties to make a decision obtained at the first stage of the authors’ research. Based on the authors' experience in previous studies the main problems were associated with the lack of information, the existence of several alternatives, no awareness of one’s interests, abilities and values as well as the influence of one’s socio-economic conditions on making a decision. The Guidance Model and its methodology (a 10-step method) focus on self-guidance through all the problematic matters, allowing students to deal with the themes which present the biggest problems.

### **Expert Evaluation of the Guidance Model**

Experts were asked to evaluate the guidance model’s significance and usefulness for making a self-guided career decision for secondary school students. The authors wished to determine whether the model and its methodology (the 10-step method) were useful for work with secondary school students and whether the model facilitated the students’ independent career decision-making. Five experts were involved in evaluating the guidance model; the experts had substantial experience in the fields related to career counselling, pedagogy or psychology.

The experts were e-mailed a description of the Guidance Model, as well as the methodology including worksheets of the 10-step method.

Table 1 shows the results of experts’ assessment as descriptive statistics. The experts are marked by the letters A, B, C, D, E. The criteria are marked with the letter K1...K7. Numbers from 1 to 5 points show the evaluation of each expert from strongly agree (5) to disagree (1).

As it can be seen from the sum of all responses, all experts fully agree that the self-directed learning is applicable for secondary school students (K1), as well as, that the decision-making models (previously developed by other authors), which are included in the Guidance Model, contain useful information for secondary school students. Also evaluating the Guidance Model as a whole as effective tools for promoting the skills to make independent, responsible and informed career decisions for secondary school students, experts agree with the statement (K7). On the issue of factors influencing career decision-making corresponding to secondary school students' age group one expert partially agreed with the statement, but four experts completely agree (K3).

Most of experts are completely agreed that decision-making difficulties, mentioned in Guidance Model, are adequate for secondary school students (K4), one expert - partially agreed and one expert acknowledged that it is difficult to judge.

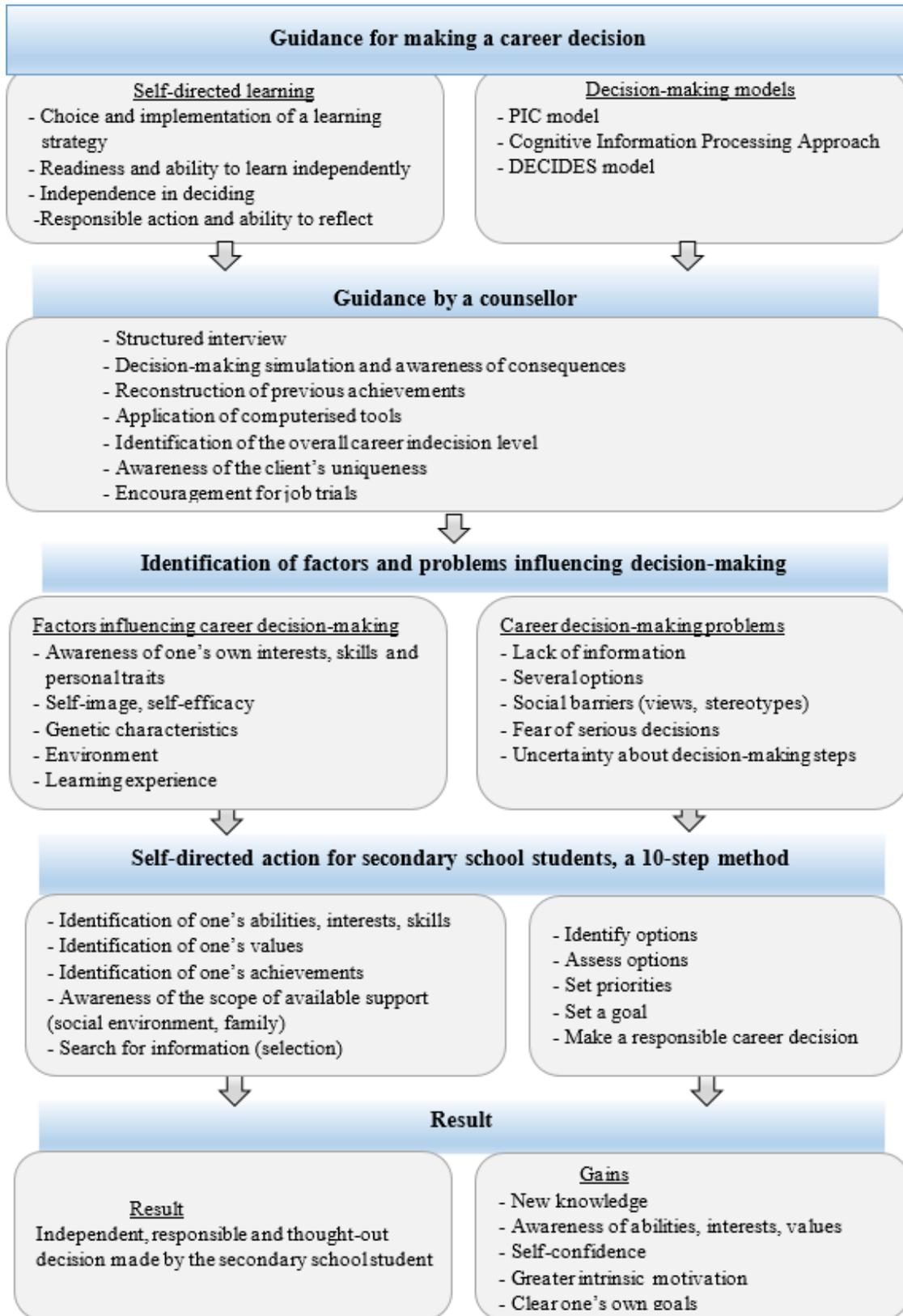


Figure 1. Guidance model for promoting self-directed career decision-making by secondary school students.

Table 1

**Data obtained during expert evaluation**

Experts	A	B	C	D	E	$\Sigma$	Min	Max	A	Me	Mo
K1	5	5	5	5	5	5	5	5	0	5	5
K2	5	5	5	5	5	5	5	5	0	5	5
K3	5	4	5	5	5	4	4	5	1	5	5
K4	3	4	5	5	5	2	3	5	2	5	5
K5	4	5	5	5	4	3	4	5	1	5	5
K6	3	5	4	5	4	1	3	5	2	4	4,5
K7	5	5	5	5	5	5	5	5	0	5	5
$\Sigma$	30	33	4	5	3						
Min	3	4	4	5	4						
Max	5	5	5	5	5						
A	2	1	1	0	1						
Me	5	5	5	5	5						
Mo	5	5	5	5	5						

Where:

Me - Median;

Mo - Moda;

A - amplitude variation;

$\Sigma$  - the sum of all the elements;

Min - the minimum value;

Max - the maximum value.

Also, career counsellor's ways of support in the Guidance Model are evaluated with the maximum of value of the three experts and two experts partly agree with this statement (K5). There is not complete consensus of the expert opinions about the evaluation whether secondary school students self-directed actions using the 10-steps method are enough to achieve the purpose of the Guidance Model (K6), two of the experts fully agree with this statement, two experts - partly agrees, but one expert believes that it is difficult to judge.

The expert evaluation's data were processed using the SPSS program and Friedman's test. Friedman's test is a nonparametric test that compares several paired groups. The test is used for interval and ordinal scale data. The data obtained were as follows as shown in Table 2.

**The experts gave their comments and suggestions.**

Expert C suggested that the mathematical decision-making method may be combined with the self-guided decision-making steps, i.e., students mathematically evaluate the factors important for themselves for various alternatives (e.g. for the choice among several professions or educational institutions). The authors agree with this suggestion and consider it useful for improving the 10-step method.

Expert C suggested that the 10-step method may also be used at primary school, as each step reveals correct solutions in case a pupil does not know the answer. At secondary school this method may be used for individual assignments, while at primary school the assignments may be done by pupils together with a class teacher or a counsellor.

The authors fully agree with this suggestion, as author L. Briska has informally tested it on grade nine students and has concluded that the method may be used, but only in a different form – the teacher, parents or a career counsellor have to be more engaged.

Table 2

**Friedman's test results**

Ranks	Average rank
A	2.29
B	2.93
C	3.29
D	3.57
E	2.93

Test Statistics(a)	
Number (N)	7
Chi-Square	6.169
Degrees of freedom (Df)	4
P-value (Asymp. Sig.)	0.187

Expert E gave additional advice on additional factors that could influence students' career decision-making including their health condition and perception specifics and prior learning. Expert E mentioned psychological support, guidance in planning activities and determining professional appropriateness as additional kinds of career guidance by a counsellor. However, if the model is implemented, the experts also mentioned the build-up of judgement abilities, the awareness of lack of skills, students' choice of growth and their active and positive life position as the gains for the students.

Before and after the experimental testing the Guidance Model survey was carried out about the level of difficulty of career decision-making for school students involved in the research. Researchers compared the level of decision-making difficulty before and after the approbation of the Guidance Model. It can be concluded that the decision making involved in this exercise supported students' improvement in decision making skills overall. An equal number of respondents have noted the decision-making level as difficult. Overall, analysing respondents' answers it can be seen that, when assessing the decision-making difficulties before and after approbation of the Guidance Model, a positive trend in the decision-making level of difficulty is observed (Figure 2).

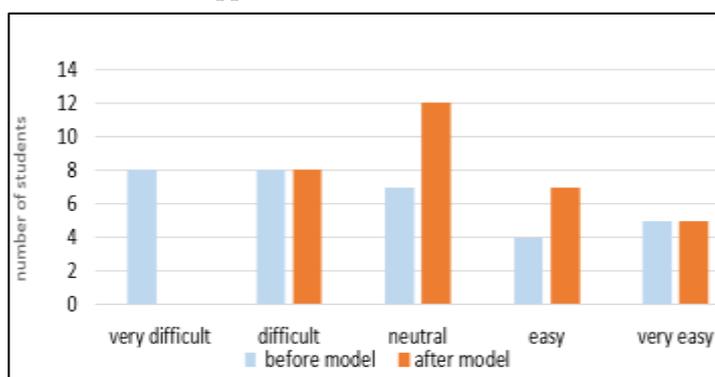


Figure 2. The level of difficulty of career decision-making for school students before and after the Guidance Model' approbation.

It can be concluded that the Guidance Model improves the ability to make a career decision and it makes the decision-making process easier for high school students. After using the 10-step method, the attitudes towards decision-making have become more positive and the decision-making difficulties are lessened. Using the Guidance Model, it is possible to improve the self-directed decision-making skills, overcoming difficulties in the decision-making related to the lack of information, unawareness of their interests, abilities, values and profession. Secondary school pupils need support and specific action plans for self-directed action to be more effective for them. The 10-step method is suitable for students who want to be independent in their decisions and do not want an individual face-to-face meeting with a career counsellor, but they prefer virtual consultations. For self-directed decision-making to be more effective, it is advisable to apply the 10-step method to the specific study subject, thus making it easier to set deadlines for tasks and in addition motivating students to function better. To guide school students to self-directed learning it is important to respect the need for a positive, motivating learning environment and atmosphere, which prepares students to engage in self-directed activities.

## Conclusions

After summarising the findings of several authors, it can be concluded that self-directed learning is a process where individuals ascertain their interests, abilities and talents, set their learning and career goals, choose and implement a learning strategy, plan their work and do reflection on their own initiative. In this process, students build up their abilities and their need for self-directed learning increases; their personality grows, and the students become more active and assume a greater responsibility for their decisions related to their learning and careers.

Based on the views of various authors, successful decision-making involves: implementing self-directed learning, seeking for associations between the personal traits of students themselves (their interests, needs, ego-conception, uniqueness) and the specifics of the profession chosen, looking for and assessing alternatives and acting regardless of the hindering circumstances.

The Guidance model for promoting self-guided career decision-making by secondary school students is a helpful tool for students in their self-directed learning and can assist them to make an independent and deliberate career decision. Students liked using the model and they successfully used it. Judging by the respondents' answers on the questionnaire it can be concluded that, assessing the decision-making difficulties before and after approbation of the Guidance Model, a positive trend in the decision-making level of students was observed. According to the author's observations after the experimental testing of

the Guidance Model, working on the issues and themes causing decision-making problems for a particular individual, a lot of skills were improved for secondary school students including the individual's information search skills, comprehension of the decision-making steps, alternative search skills. The secondary school students, involved in the experimental approbation of the Guidance Model, made independent and deliberate career decisions. The authors observed that they learnt a new knowledge, acquired abilities, became aware of their interests and values, became self-confident, their goals became clear and their internal motivation increased. The model is intended for career counsellors, pedagogues-career counsellors and class teachers in their work with secondary school students.

After analysing the experts' ratings of the model, it can be concluded that the model was positively rated.

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## The Interrelation between Organizational Learning Culture and Organizational Citizenship Behavior

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**Abstract:** In the era of rapid technological transformations and under conditions of growing competitive environment and changes in customers' needs, the survival of the organizations depends on their ability to learn how to properly and quickly increase their efficiency and performance and adapt to the changing environment. The management of changes is the first priority for the organizational leader. Leaders have to attract, motivate, and reward their workers, as well as train, educate and improve the performance of their employees by creating organizational learning culture (OLC). Organizations that have prioritized learning and development have achieved an increase in productivity and profitability. The organization, whose employees' behavior and attitude to job are demonstrated in their contribution made beyond the job's demands, beyond the level they are committed to and for what they are not recompensed by the organization, will always be able to be competitive and will succeed for years. D.W. Organ (1988) called such behavior "Organizational Citizenship Behavior" (OCB) and emphasized its being an important factor in assisting the organization to reach its goals. Research aim: to provide the theoretical background of the interrelation between organizational learning culture and organizational citizenship behavior of employees. A review of the respective literature identified a gap in the research on the concept OCB and its dimensions by the examination through learning culture characteristics. It is suggested that the organization should look for ways of improving the OCB of their workers by creative OLC motivated by the leadership.

**Keywords:** organizational citizenship behavior, organizational learning culture.

### Introduction

Since the second half of the 20th century, due to the current expansion of the global economy and the rapid evolution of technology and innovation, the organizations are facing an ongoing need that the employee learns and develops (Egan, Yang, Bartlett, 2004). In this context, the organization must stay competitive in order to survive. The organization's activity in the restless, uncertain and turbulent environment, and the need to adapt to changes, require from the organizational learning subject to become one of the most important subjects in the organizational field.

In order to continue and to preserve their success in the global, competitive and dynamic world, the organizations need to improve their performance, to learn faster and better than their competitors. To this end, they need to increase their ability to change by accelerating the development of new products, processes and services (Mirkamali, Thami, Alami, 2011). The emphasis is put on prioritizing the development of an organizational learning ability that will enable the organization to survive the pursuit of product and profit. The only organizations that can survive are those that are able to transform themselves into more intelligent and profitable ones, as well as improve their learning capability. An organization that will transform itself according to this new kind of structure will gain greater knowledge, flexibility, speed, power and learning ability. This paper will refer to such kind of organization as a 'learning organization'. K.E. Watkins and V.J. Marsick (1993) have defined the learning organization as one that learns continuously and transforms itself. Organizational learning is a process of knowledge acquisition, dissemination and exploitation that is important for an organization's competitiveness and survival. Companies with a learning capability can gain a competitive advantage (Chang, Lee, 2007).

Moreover, what is expected of the employee today is undergoing changes. In order to learn a new technology and to work with it, the employees require new skills, and need to be more creative and competent. To achieve this, there is a need for the employees who can be considered to be 'caring' and investing. Such employees volunteer to fulfil their tasks beyond their defined role. Organizations whose employees have human behavior which is expressed in the employee's contribution beyond the job's demands, beyond the level he/she is committed to. D.W. Organ (1988) called this behavior "Organizational Citizenship Behavior" (OCB) and emphasized it as an important factor in assisting the organization to reach its goals. One of the organization's main goals is to find the right way to make the

employee behave accordingly. The organization leaders have to attract, to motivate, to reward, to recognize and retain, to train, to educate, and to improve the performance of those employees. The leaders must satisfy the changing needs and expectations of the workers, thereby leading to the evolution of the learning organization (Singh, 2008).

The main aim of the research is to investigate the relationship between organizational learning culture (OLC) and organizational citizenship behavior (OCB). The purpose of this paper is to provide the theoretical background of the interrelation between organizational learning culture (OLC) and organizational citizenship behavior (OCB) of employees.

### **Methodology**

The research undertaken for this article is theoretical and based on a study and synthesis of the existing literature on the topic. The scope of the literature consulted includes classic management literature and articles specifically on organizational learning culture and organizational citizenship behavior of employees. Analysis of the respective literature identified a gap in the research on the concept OCB and its dimensions by the examination through learning culture characteristics. It is suggested that the organization should look for ways of improving the OCB of their workers by generating an OLC motivated by the leadership.

The learning organizational indices OCB can be used by the manager as evaluation tools to determine employee's levels of performance and thereby improve the range of tools that are available to managers. This may help to recognize the parameters of the environment that managers work in, the degree of success of the organization in fulfilling its objectives and especially the employees' attitude towards the organizational apparatus. These indices help to identify an organization whose employees expresses willingness to maintain an OCB beyond the requirement in the formal role framework.

### **Results and Discussion**

#### ***Organizational learning and learning organization***

Since the second half of the 20th century, the continuous changes cause an increase in ambiguity and uncertainty. Under these conditions, where the speed and power of changes are incalculable, the organization's ability to learn is critical (Pedler, Boydell, Burgoyne, 1989). According to R.W. Revans (1980), the learning rate in organizations must be equal to or bigger than the change rate in the environment.

C. Argyris (1997) defines organizational learning as a process of errors exposure and correction. D. Robbey and C.A. Sales (1994) associates learning with a storage process of acquisition, accessibility and control of organizational memory. The above definition indicates that organizational learning occurs through different types of processes:

- the process of disclosure and error correction;
- the process of knowledge development and accumulation;
- the process of acquiring knowledge and storing it in an available organizational memory;
- the process of expanding the capacity to take effective action.

In the first years of research in this field, scientists stayed at the individual level and described the process as a result of all individuals in the organization working together to learn, to solve problems and to create innovative solutions. Later researches showed that organizational learning occurs at all levels, such as individual, team, organization and community (Beckman, Berry, 2007; Garvin, Edmondson, Gino, 2008; Yen-Hsu, 2009). Organizational learning is used to describe certain types of activities that take place in an organization. According to A. Ahmadi (Ahmadi, Daryani, Bevrani, 2014), organizational learning is a construct, which implies that the entity called an organization actually gets engaged in the process of gathering and processing information, and as a consequence its potential behavior is changed.

The organizational learning process is dependent upon a workplace culture that encourages staff members, at all levels of the organization, to share ideas and insights (Castiglioni, 2006).

Unlike the definition of 'organizational learning' that focuses on understanding the nature and the processes, the definition of the term 'learning organization' refers to the practical and ongoing aspects of the ability and the application of practices that help the organization to learn, such as: experiencing

and learning from the experiences, problem-solving ability, self-observation, drawing conclusions, creation and invention, knowledge acquisition and transformation. According to D.A. Garvin (1993), the learning organization is an organization with the ability to create, acquire and transfer knowledge; an organization that is capable to adapt its behavior in a way that will reflect the new knowledge and insight gained and accumulated. E.W. Rowden (2001) defines the learning organization as a model of strategic change where everyone is a partner in identifying and solving problems, so that the organization is continuously variable through experimentation and improvement, and thereby increasing the capacity for growth and achieving its goals. Learning organizations have significant experience in processes and the ability to analyze, implement and integrate this experience. D.A. Garvin (Garvin, Edmondson, Gino, 2008) believe that all the organizations must become learning organizations and that this is necessary today more than ever, since all the organizations need to deal with the changing environment and external forces. They stress that the learning organizations should be able to change their behavior according to knowledge and new discoveries. It means that learning organizations can succeed at the processes of analyzing, implementation and the integration of their experience.

K.E. Watkins and V.J. Marsick (1993) define a learning organization as one that learns continuously and transforms itself. S.L. Beckman and M. Berry (2007) believe that in learning organizations continuous learning is common knowledge. According to R.L. Daft (1999), the learning organization is an organization where everyone is involved in identifying and solving problems; this procedure allows the organization to go through an ongoing experience, improve and increase its ability.

A. Ahmadi (Ahmadi, Daryani, Bevrani, 2014) describe a learning organization as a construct related to an organization that has a thoughtful philosophy for anticipating, reacting, and responding to change, complexity, and uncertainty. The learning organization refers to a particular type of organization: it is an organization that is good at organizational learning.

The importance of learning for the organization's success, development and survival yielded an extensive professional literature in the last three decades. However, many researchers claim that there is no accepted theory or model about the organizational learning (Garvin, 1993; Crossan et al., 1999; Tsang, Zahra, 2008; Kurland, Peretz, Hertz-Lazarowitz, 2010; Swart, Harcup, 2013).

Some researches see in organizational learning and in learning organization two sides of the same coin and use the concept interchangeably (Robey, Boudreau, Rose, 2000; Moilanen, 2005; Song, Kim, Kolb, 2009) while others believe that the concepts are different (Sun, 2003; Yeo, 2005). Organizational learning refers to a process of acquiring, disseminating and using knowledge, while a learning organization refers to a structure that exists because of learning, so that a learning organization would be an ideal condition to achieve. Organizational learning is academic in nature, while the learning organization literature targets at practitioners and consultants (Sampe, 2012).

Table 1

### Organizational Learning and Learning Organization

(Kontoghiorghes, Awbery, Feurig, 2005)

Organizational Learning	A Learning Organization
Organizational learning is considered to be a learning process.	A learning organization is regarded as a form of organization.
Occurs naturally in organizations.	Needs to be developed.
Literature on organizational learning appeared from descriptive and academic inquiries.	Literature on the learning organization was developed mainly from prescriptive and practical demands
Focuses on the individual learner, and knowledge residing in the individual.	Learners perform at the individual, group, and organizational levels, and knowledge is located not only in individuals, but also in the organization's memory of the particular learning organization.

Table 1 shows some differences between organizational learning and learning organization. This research focuses on an organizational learning concept.

### ***Organizational learning culture***

According to C. Argyris and D. Schon (1978), organizations are not just a collection of individuals. M. Popper and R. Lipshitz (2000) suggested that the organization has the opportunity to learn in two ways: by learning from its own members or by bringing experts from outside the organization. They distinguish between the two terms: 'learning in organization' (LIO) and 'learning by organization' (LBO). Learning in organization means that an organizational learning process is mediated by different individuals from the organization and learning by organizations implies a situation in which the organization itself is the learning agent.

Organizations learn through the experiences and activities of individual members of the organization. Organizational learning will not occur without dedicating time and creating structures and mechanisms that allow the existence of learning processes that are assimilated in the organization's routine (Englehardt, Simmons, 2002). These structures include: a) frequent meetings for solving problems, b) flexible time for meetings, c) regular activities for professional development, d) shared preparation period, e) cross-department team meetings. Learning organizations are organizations that embed learning mechanisms established within their learning culture (Popper, Lipshitz, 2000). Y. Jung and N. Takeuchi (2010) claimed that the organizational culture provides rules, norms and values for organizational members sharing information, reaching agreements and acting on its results. A learning culture is an integral part of organizational behavior that occurs as a continuous process of improvement. An organizational learning culture is focused on basic assumptions, beliefs, values and behaviors that are associated with learning organizations (Schein, 2010). The characteristics of organizational learning culture are a) fast response, b) flexibility, c) integration, d) entrepreneurship and e) innovation.

V.J. Marsick and K.E. Watkins (2003) developed the dimensional questionnaire (DLOQ) that is designed to measure learning culture in organizations. This questionnaire has seven dimensions of the learning organization culture: a) continuous learning, b) inquiry and dialogue, c) collaboration and team learning, d) creating systems to capture and share learning, e) empowering people toward a collective vision, f) connecting the organization to its environment, g) strategic leadership (Table 2).

Table 2

**Value of an Organizational Learning Culture**  
(adapted from Marsick, Watkins, 2003)

<b>Dimension</b>	<b>Definition</b>
Continuous learning	Learning is designed into work so that people can learn on the job.
Inquiry and dialogue	The culture is changed to support questioning, feedback and experimentation.
Collaboration and team learning	Groups are expected to learn together and work together; collaboration is valued by the culture and rewarded.
Creating systems to capture and share learning	Both high- and low-technology systems to share learning are created and integrated with work; access is provided; systems are maintained.
Empowering people toward a collective vision	Responsibility is distributed closely to decision making so that people are motivated to learn what they are held accountable for.
Connecting the organization to its environment	People are helped to see the effect of their work on the entire enterprise; people scan the environment and use information to adjust work practices.
Strategic leadership	Leaders model, champion, and support learning.

Theory of V.J. Marsick and K.E. Watkins (2003) explains how people shape culture for learning. They propose a learning process at two levels: learning at the individual level and learning at the organizational level. V.J. Marsick and K.E. Watkins (2003) emphasize that individual learning is related to organizational learning though not equal to it. They support the idea that organizational culture is built by leaders and other key people, who learn from their experience, influence the learning of others, and create an environment of expectations.

Organizational learning culture has found wide expression in the studies in recent decades, examining its effect on job's satisfaction, turnover intention, organizational commitment, organizational performance, organizational learning process, organization leader's impact (Egan, Yang, Bartlett, 2004; Joo, Lim, 2009; Song, Joo, Chermack, 2009; Hung et al., 2010; Joo, Park, 2010; Song, Jeung, Cho, 2011; Emami et al., 2012). The theoretical framework of V.J. Marsick and K.E. Watkins (2003) is the basis of the study at hand.

### ***Organizational citizenship behaviors (OCB)***

The term 'organizational citizenship behavior' (OCB) was first defined by C.A. Smith, D.W. Organ and J.P. Near (1983). They describe the behaviors that are different from in-role behaviors and go beyond the role prescriptions to contribute to organizational functioning. According to D.W. Organ (1988), OCB reflects "individual behavior that is discretionary, not directly or explicitly recognized by the formal reward system and that is the aggregate which promotes the effective functioning of the organization" D.W. Organ (Organ, 1988, 4) thinks that the behavior is not an enforceable requirement of the role or the job description, that is, the clearly specifiable terms of the person's employment contract with the organization; the behavior is rather a matter of personal choice, such that its omission is not generally understood as punishable. OCB is not written in any job's definition and results occur from people's own personal extra effort (Kaya, 2015).

T.S. Bateman and D.W. Organ (1983) classified OCB as helping voluntarily other employees, providing innovative suggestions to improve the organization, not taking advantage of employees' rights, not requesting unnecessary leaves, participating in the elective meetings and avoiding complaints. J.C. Jackson (2009) described OCB as beneficial behavior of workers, which was not prescribed but occurred freely to help others achieve the task at hand.

Organizational citizenship behavior has five dimensions:

- altruism comprises all voluntary behavior, specifically aimed at helping others in an organizationally relevant issue or in relation to problems in the organization (Kamer, 2001);
- conscientiousness is the behavior that reflects the genuine acceptance and adherence of workplace rules, regulations, and procedures in a manner above what is expected (Podsakoff et al., 2000);
- sportsmanship is defined as "a willingness to tolerate the inevitable inconveniences and impositions of work without complaining." (Organ, 1990, p. 96);
- courtesy comprises behavior that includes informing other employees before the decisions that may affect them (Deluga, 1995);
- civic Virtue is characterized by behaviors that indicate an employee's deep concerns and active interest in the life of the organization (Law, Wong, Chen, 2005).

Where OCB can be found? In which behavior is the concept expressed? Here are some examples of behavior that reflect the behavior of the OCB:

- helping others when they return from a long absence;
- sharing information with other employees;
- announcing in advance when the worker can't get to work;
- not taking breaks outside those that are officially defined;
- not doing personal phone calls from the work;
- not looking forward to the end of the work;
- using the organization's resources in a prudent and economical way even when it is not enforced by the management;
- contributing to improving the organization's image and reputation in the external environment;
- assisting the superiors even when they don't ask to do so and without expecting anything in return.

Because of the changing environment, organizations will necessarily become more dependent on individuals who are willing to contribute to successful change, regardless of formal job requirements (Somech, Drach-Zahavy, 2004). OCB expressed in different levels of identification with the organization, its goals and values. It gives the organization strength, motivation and resources and promotes the organization's interests. OCB specifies activities that are not considered as organizational qualifications, but as the activities, which are useful for organizations.

Recent researchers focused on the practical importance of the OCB. According to D.W. Organ (Organ, Podsakoff, MacKenzie, 2005), OCB contributes to innovation, resource transformation and adaptability in environments demanding complex, team oriented and ambiguous work, which ultimately improves the efficiency and effectiveness of the entire organization. According to I. Oplatka (2004, 2009), the employee's work life includes many activities and tasks that are beyond the formal definition of the employee's role, are given to his/her consideration and his/her desire, and very much contribute to the organization's functioning and its success. OCB develops the effective performance of organization, elevates the organization as a whole and recommends it to other parties (Williams, Anderson, 1991).

Since the establishment of the OCB concepts, numerous studies had been conducted, which examined the connection between organizational citizenship behavior and other organizational phenomena, such as job satisfaction (Williams, Anderson, 1991; Talachi, Gorji, Boerhannoeddin, 2014), personal commitment (Tepper et al., 2004), turnover intention (Egan, Yang, Bartlett, 2004), interdependence and team's identification (Van Der Vegt, Van De Vliert, Oosterhof, 2003), professional (Cohen, Kol, 2004), organizational politics (Vigoda, 2000), organizational climate (Farooqui, 2012) and organizational support (Islam et al., 2014).

This research will use the five-category model developed by D.W. Organ (1988).

### ***The interrelation between organizational learning culture and organizational citizenship behavior***

A. Kaya (2015) suggested that OCB is closely related to organizations' learning identities and harmony and commitment among its members. When employees perceive that their organization is providing them such an environment where there are chances of growth, learning and sharing ideas, they will show their relations with the organization as well as with other colleagues. When employees feel that their colleagues and the entire organization allow them to learn, to experience, to make mistakes and to learn from the mistakes without being accused, they will be willing to invest in their work and show the kind of behavior which OCB suggests. The employee should have the knowledge, ability and opportunity to behave according to the predictions of organizational citizenship behavior (Ahmadi, Daryani, Bevrani, 2014). According to A. Somech and A. Drach-Zahavy (2004), learning organizations create the environment that enables the employee to focus on continuous learning instead of focusing on the immediate outcomes. T. Islam assume that learning values widen the perceptions of employees and they start thinking a new, instead of performing formal tasks i.e. helping their colleagues to achieve the desired outcomes of the organizations for its success (Islam et al., 2013). This means that learning values increase the citizenship among employees. S.J. Jo and B.K. Joo (2011) conclude that organizational learning culture is positively associated with OCB.

The goal of this study is to research the interrelation between organizational learning culture and organizational citizenship behavior and their values. Based on detailed literature review and determining the basic dimensions of both independent and dependent variables, Figure 1 shows the research conceptual model.

As is obvious from the conceptual model of research, basic dimensions of organizational learning culture encompass:

- creating continuous learning opportunities;
- promoting inquiry and dialogue;
- encouraging collaboration and team learning;
- creating systems to capture and share learning;
- empowering people toward a collective vision;
- connecting the organization to its environment;
- providing strategic leadership for learning.

Basic dimensions of organizational citizenship behavior also encompass: altruism, conscientiousness, sportsmanship, courtesy and civic virtue.

The current study attempts to enrich the term organizational citizenship behavior "OCB" by examination through organizational learning characteristics.

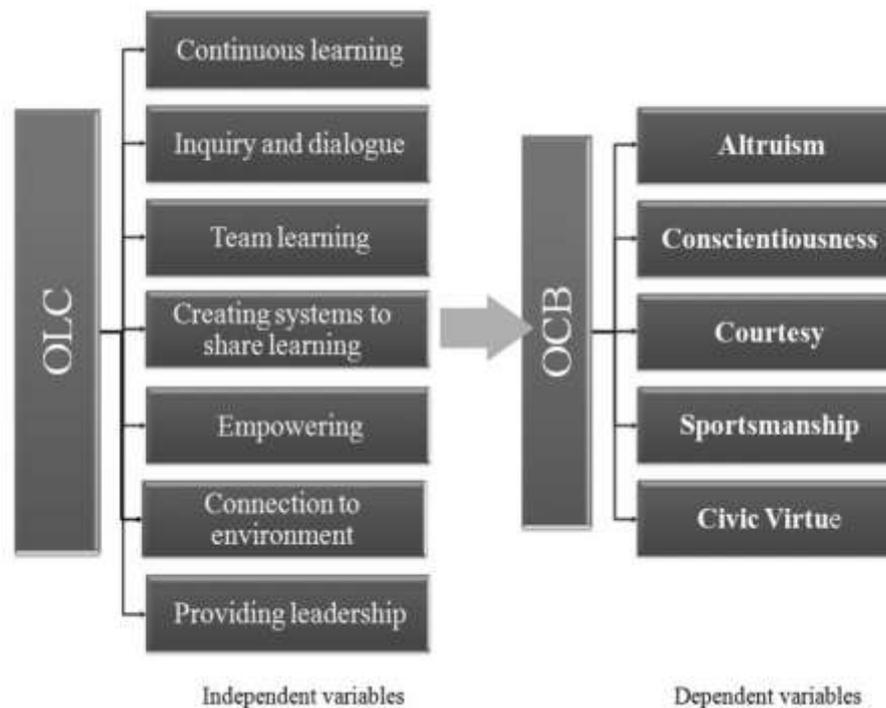


Figure 1. The research conceptual model.

The positive contribution of OLC to job satisfaction, turnover intention, organizational commitment, organizational performance, organizational learning process, organization leader's impact are things well acknowledged by the literature (Egan, Yang, Bartlett, 2004; Joo, Lim, 2009; Song, Kim, Kolb, 2009; Hung et al., 2010; Joo, Park, 2010; Song, Jeung, Cho, 2011; Emami et al., 2012). The factor that may predict the behavior as suggested by OCB is organizational learning, which has not been verified so far. Last decade researches (Somech, Drach-Zahavy, 2004; Islam et al., 2012, 2013, 2014) concluded that OLC and OCB correlate with each other and OLC is a strongly significant moderator of OCB. A learning organization provides such culture to its employees where they can learn continuously and share their ideas and dialogues with each other. This research has added to the understanding of the interrelation between OLC and OCB by finding correlation between their dimensions. In addition to the theoretical implications of this study, there are also practical ones. Leaders and managers of the organization are recommended to increase the employees' OCB through the strategies such as promoting their knowledge via giving training courses, preparing necessary facilities to continue their education and also improving their interpersonal and work relationships to create a learning organization.

## Conclusions

The present research has only offered the conceptual model of the interrelation between OLC and OCB but did not check it empirically. Future research will survey different dimensions of OLC and OCB. Cultural context may affect the forms of citizenship behavior observed in organizations. It gives the new direction of further research: to check and compare if there are differences in the results in various countries, in profit and non-profit organizations.

The future studies will be contributed both theoretically and practically. One of the theoretical implications: OLC will be validated and measured by OCB correlation. Further studies will explore in depth how learning culture in the organizations encourage Organizational Citizenship Behavior. It has become important for managers today to have employees with some extraordinary qualifications because of the fierce competition. By promoting learning culture managers should enhance employee's extra role behaviors.

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## Harmonization of Organizational Culture Values and Personal Values in Public Sector

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**Abstract:** The aim of the research is to find out thoughts and opinions of employees working in Latvian public sector towards organizational culture values, to provide assessment of conformity of organizational culture values and personal values. The developed hypothesis has been tested on 939 individuals working in the public sector, whose age varies from 22 to 63, and who work in Ministry of Agriculture Industry Portal. The obtained data have been processed based on the research results and using cluster analysis with the aim to analyse and study cultural values of different organizations and management of personal values. Findings: consistency and conformity of personal values and values of the organization allows determining the level of employees' support and acceptance of organizational values, thus, determining whether the set direction of development is sufficiently supported by employees, as well as allows assessing organization's willingness to change and level of organizational culture in general. In its turn, differences and inconsistency between personal and organizational values warn the organization of the necessity to introduce organizational, structural changes, sometimes, reflects the need to reconsider organizational goals, priorities and values. Originality/value – research of personal and organizational values of employees working in Latvian public sector by applying R. Barrett's "The Seven Levels Model of human consciousness".

**Keywords:** organizational culture, personal values, values of the organization, adult education.

### Introduction

Organization is an integral part of the modern society and a person is the main value both whether the organization works for private benefits and goals or performs public functions. The achievement of goals of any organization is ensured by all the people working for the benefit of an organization and at the same time for their own personal good. Setting and achieving targets of an organization is mainly dependent on management competences and ambitions, in its turn staff is a limiting factor in achievement of the set goals. Therefore, it is essential to comprehend not only employees' workability and professionalism for the benefit of the organization, but also, be able to create conditions which would allow employees to be interested in long-term work for the organization and collaboration in both achieving its goals and satisfying personal priority needs.

The last decade of the 20th century and the beginning of the 21st century represents the time of essential and rapid changes, when more and more attention has been paid to the employees' role and place in the organization, cultural resilience and development of value-oriented organization. Organization, which is unable to adjust to the changing market conditions, can not maintain sustainability under the long-term pressure conditions. Such organizations fail to lead markets and are destined to offer and produce the simplest products and service. Meanwhile, introduction and implementation of technological, structural, personnel competences are impossible without alignment and approval of values and norms. I. Eshenvalde (2004) notes that the process of cultural changes is complicated and long, as values get harmonized by employees' beliefs, motives and needs, which in turn form personnel's "soft" competence part which is hard to change in the future. However, in order to understand what exactly helps or impedes the organization to become value-oriented, it is necessary to research and analyse both personal and organizational values. Value-oriented organizations represent integrity, decrease the level of staff irrelevance and reflect the development perspective of the organization. Therefore, the present research "Harmonization of organizational culture values and personal values in public sector" focuses on analysis of the situation in the organizations of public administration.

**The following techniques have been used in the research:** analysis of theoretical literature, methods of theoretical research: theoretical analysis, content analysis, modelling, survey which is based on R. Barrett's (Barrett, 2006) "The Seven Levels Model", analysis of the obtained results applying the method of statistical data processing, cluster approach.

Assessment of theories on organizational culture resulted in the choice of R. Barrett's (Barrett, 2006) "The Seven Levels model", which is best suited for analysis of organizational culture values of public

sector employees and became the basis of survey. The survey polled both employees and managers, thus obtaining bilateral vision of the issue. The obtained results lead to conclusions and recommendations on the way how to use the research results for assessment of organizational culture. Statistically processed data of the research results and tests made it possible to study and analyse the cohesion of organizational values and personal values.

**Research question:** How do employees of the public sector perceive organization and to what extent do they care about the goals set by the organization and their achievement? The relevance of the value research is also stressed by the opinion expressed by the European association for People Management, emphasizing that value-orientation is connected with the individual harmony of employees, further subordinated by harmony in the organization. Therefore, administration has to promote balance of personal and organizational values, as well as work for emotional cooperation between employees and administration. Besides, leaders have to be devoted to the vision, mission, values and conduct of the organization and be an example of unity of words and actions (Barrett, 1998). Currently employees are primarily oriented towards the development of their personality rather than development of the organization, therefore employees do not associate themselves with one life-long working place anymore. This substantially changes employees' needs and type of work relations.

**The aim of the research** is to find out thoughts and opinions of employees working in Latvian public sector towards organizational culture values, to provide assessment of conformity of organizational culture values and personal values.

### Methodology

Culture can be viewed as one of the subsystems of an organization along with technological, administrative and other subsystems, which fulfil the function of adapting organization to the environment and promoting employees' identification with the company. However, the present article views "organizational culture" as a quality of an organization, which is a set of behaviour, values and myths, distinguishing one organization from the other one. State administration as organizational culture has been researched not according to economy terms, but from the value perspective, which reveals subjective view of organizations.

Organizational culture has been surveyed by different well-recognized scientists (Cameron, Quinn, 2006; Kets de Vries, 2009; Armstrong, 2003; Barrett, 2006), however, the in-depth study of organizational values in the present research is based on "the Seven Levels Model of human consciousness" developed by R. Barrett.

The R. Barrett's (Barrett, 2006) model is based on the seven stages of psychological development and applies both to all individuals and human group structures—organizations, communities, nations. Each stage focuses on a certain need or a vital necessity relevant for a particular human condition - the first three (lower) levels of consciousness focus on meeting the basic needs, physical survival, physical and emotional safety. The higher three levels (5-7) refer to the "higher" needs and focus on finding meaning of life, world perception and personal expression, commitment and responsibility for the good of society. The fourth level is important as it involves transformation - a shift from personal benefits to common good (Barrett, 2006).

Based on R. Barrett's "The Seven Levels Model of human consciousness", the survey has been developed including 55 questions; each question corresponding to one the *seven consciousness stages*. The first 11 statements refer to the first level – „Survival”, statements from 12 to 18 relate to the second level – “Relationship”, statements 19 - 27 reflect the third level – „Self-esteem”, statements 28 - 34 - the fourth level „Transformation”, statements 35 to 40 refer to the fifth level „Internal Cohesion”, statement 41 to 46 relate to the sixth level – “Making a Difference” and, finally, statements 47 to 55 cover the seventh level – “Service”. All statements have positive context and carry equal weight rated on a five-point Likert scale. The minimum number of points is 55, but the maximum number of points is 275. Originally the survey development involved factor analysis which helped in grouping the statements. Afterwards, with the help of Cronbach's  $\alpha$  (alpha), the statements have been edited and clustered. As a result, out of 55 statements 54 have been classified in 7 groups and each group referred to the specific level. Despite the fact that one statement "*organization cares of saving cultural heritage by investing in culture*" has not been included in any level, it still remained in the survey. The survey is conditionally divided in two parts. The first part is

developed in the tabular form containing 55 statements; response options offered in a scale form (Likert scale) (from 1- strongly disagree to 5 - strongly agree), as it is significant and important to compare personal values and values of organizational culture. The second part - the general part includes informative and demographic data on respondents (age, education, work experience). The aim of the research is to find out thoughts and opinion of employees working in Latvian public sector towards organizational culture values, to provide assessment of conformity of organizational culture values and personal values.

In general, the research survey indicates high internal coherence ( $\alpha$  is between 0.74 and 0.87). All scales used in the research have a good credibility coefficient. The highest credibility coefficient corresponds to the 5th level "Internal Cohesion", where  $\alpha = 0.87$ . At this level groups cooperate by coordinating all group members' values and motives with the common vision and values of the group. As a result, develops the internal cohesion, increases efficiency. Summarizing all seven levels, there arises the general level of culture, which determines conformity of consciousness levels of all groups.

### **Research Participants**

In accordance with the aim of the research 939 (n=939) respondents aged 22-63, working in public sector, have been interviewed. Employees of Latvian state institutions received electronic questionnaires with the request to participate in the survey. 939 respondents accepted the invitation. With regard to the level of education, the major part of respondents has Master's or Doctor's degree, which amounts to 505 or 53,8 % of respondents. Other respondents have been divided into the following groups based on their level of education: 2nd level of higher education – 286 or 30,4 % of respondents, secondary or 1st level higher education - 148 or 15,8 % of respondents. The gender composition was: 77.9 % female respondents, 22.1 % - male respondents.

### **Results and Discussion**

#### **Description of organizational culture values**

From the point of view of key features of an organizational structure, organizations have more similarities rather than differences among each other (structure, process, system of management), however, differences appear with respect to organizational structure. Each organization practices its own culture which depends on many factors.

Business consultant C.B. Handy (2007) is considered the author of the notion "organizational culture", and according to Ch. Handy culture is a profound belief of an organization on the way to organize work, share responsibilities and power to control and encourage employees. At present, there are 250 definitions of "Organizational cultures", also called "corporate cultures". Many of these definitions emphasize some particular characteristic features of organizational cultures. Such scientists (Hofstede, 1980; Schein, 1992; Brown, 1998; Cameron, Quinn, 2006) do not have a common definition of "organizational culture", however, everyone acknowledges its important role and influence on the ongoing processes in the organization. Some scientists view organizational culture as the basic potential for organization's life, others (Dalton, 1959; Sayles, 1964; Stewart, 1967a, 1967b; Reddin, 1970; Mintzberg, 1973; Handy, 2007) consider it as an instrument of motivation to encourage the employees to work properly and, thus, to increase the productivity of labor in the enterprise. Further research (Ouchi, 1978) paid special attention to various traditions, customs and rituals practiced in the organization.

E.H. Schein (1985) suggested the most known definition of "organizational culture", which implies a unity of relatively strong beliefs, values and social norms, which formed and enhanced internal integrity of an organization and adjusted to the surrounding social economic environment.

Further, one of the leading researchers of culture G. Hofstede (Hofstede, Hofstede, Minkov, 2005) mentioned that culture presents collective forms of conduct, thinking and emotional experience. In the analysis of the definition of "organizational culture", R. Barrett (Barrett, 2006) expresses opinion that "values have to become an integral part of organizational culture". His research covered the study of values of more than 500 enterprises in 35 countries; he concludes that "value-oriented enterprises are undoubtedly the most successful in the world" (Barrett, 2006).

The study of Management Science considers that cohesion of personal and organizational values ensures long-term organizational culture. Only value-oriented organizations are capable to form and develop

organizational culture, flexible and able to adjust to the changing modern environment, as well as ensure long-term value-oriented work of the organization (Barrett, 2006). Values represent the core of organizational culture and involve organization's competitiveness in the long term (Hofstede, Hofstede, Minkov, 2005). Therefore, currently, the issue of human resources management process, as well as organization's building their activity on values, is more topical than ever. Managing human resources is a challenging task, besides it is strategically important to build a connection between the management of human resources and the company management. According to I. Forands (2007), personnel is the main implementer of organizational activity, hardly predictable, as it is guided by different values and difficult to manage "features". Management of human resources differs from personnel management, for instance, personnel management in general is directed at "lower management level" employees, whereas management of human resources implies special attention to the work of heads of departments, as there is a fundamental meaning in development of organizational culture (Armstrong, 2014). As per R. Barrett (Barrett, 2006), an organization cannot perform at the level of consciousness higher than the personal level of awareness of the heads of organization. Even though the value-based management of the organization is quite innovative, it implies an important idea, which opens wide opportunities for improvement and development processes in the organization. Undoubtedly, in organizational management values enable to consciously create a wished organizational culture (Barrett, 2006). Furthermore, development of organizational culture or changes can become a strategic goal of an organization (Davidson, 2008).

The source of competitive advantage is powerful organizational culture, this is also proved by the studies conducted in the 70s of the last century, indicating that a successful organization tends to demonstrate high level of culture (Deal, Kennedy, 1982; Peters, Waterman, 1982). The research of 100 world famous organizations reveals that it is exactly organizational culture that is the main determining factor, which distinguishes the best and leading organizations from average level companies (Pfau, Kay, 2002). Nowadays, there are numerous negotiations, presentations at international conferences and books published on the issue of organizational culture being one of the most meaningful sources of competitiveness. For instance, such enterprises as Google, Wegmans Food Markets stand out thanks to their unique and distinctive internal work culture, which is impossible for others to copy.

Organizational culture defines organization's aesthetic working principles; it implies ways and traditions of work in a particular organization, encouraged and unacceptable ways of work. Researcher of organizational structure E.H. Schein (1992) concluded that organizational culture determines ideology, common value system, which limits desirable and unwanted ways within the organization, behavior norms, system of rewards and sanctions.

In general, values are principles, standards which represent the basis for judgment, action and choice (Van Der Wal et al., 2006). Values are considered a special feature of organizational culture, elusive and directly invisible part of organization, unable to touch and assess, therefore heads of organizations often neglect this significant part (Davidson, 2008). In the context of organization values represent regulatory guidelines, which promote or restrict the expected work and attitude in the organization (Christensen et al., 2007; Guidelines on National..., 2012).

J.P. Kotter's (Kotter, 2001) research results reveal that performance results of value-based organizations are much better than in other organizations. C. Argyris (1957) suggests an interesting view of the cohesion of personal and organizational values. In his research, he tries to identify ways to address the needs of both parties - individuals and organizations. The solution is as follows: organizations should adjust their system of values so that employees would feel psychologically healthy and would not experience too much control.

In Latvia organizations started to show interest and form organizational culture only in the 90s of the last century. Even so, at present there are comparatively few studies showing analysis of culture in Latvian organizations. Analysis of organizational culture and its conscious development is much less reviewed than diagnostics of organizational culture type. At present, exactly diagnostics of organizational culture type has found support and feedback of many organizations and is considered a fashionable issue. According to G. Davidson (2008), analysis of the type of organizational culture presents importance only if it is based on the study of characteristic elements and ways of expression of organizational culture. Many recognized scientists (Harrison, 1972; Handy, 2007; Deal, Kennedy, 1982; Cameron et al., 2014) base organizational culture not on organization's structural features, but on cultural paradigm features, understanding of human nature, attitude towards dominating values of

organization. Classification of organizational culture is based on values and styles of leadership, therefore emphasizing great importance of values in development of organizational culture.

Organizational values create the basis of organizational management, which may seem remarkable, as in everyday life hardly anyone connects methods and management approach with values. It can be affirmed that every employee has his or her own unique system of values, as well as organization, therefore the influence of individual values on organizational system should not be ignored or forgotten. Values can be defined as criteria of choice of action and assessment of incidents (Schwartz, 2012). Individual values determine personal goals and actions, as well as explain a person's use of time, efforts and money (Davidson, 2008).

Previously mentioned researcher of organizational culture G. Hofstede (Hofstede, Hofstede, Minkov, 2005) has been studying characteristic features of national cultures since the 60s of the 20th century. At present the research includes 63 countries around the world and various organizations. G. Hofstede (2011) notes that features of national culture can not be automatically equated with characteristic of an organization. However, the most characteristic feature of national culture in the Baltic States - low power distance, strong avoidance of uncertainty, and examples of individualistic societies. The survey on values of Eurobarometer, conducted in 27 European countries, revealed the top 5 choices of Europeans to the question "what values make you happy?", namely health, love, work, money, friendship, peace, freedom (The Values of Europeans..., 2012).

The values of Latvian residents are declared in such state important documents as preamble to the Constitution of the Ministry of Culture of the Republic of Latvia "Fundamental principles of national identity, civil society and integration policy for 2012–2018" as well as in the document "Sustainable development strategy of Latvia until 2030" (Sustainable Development Strategy..., 2010). These documents state such values as the Latvian language and Latvian cultural space, loyalty to the Western values of democracy, freedom, responsibility, justice, human respect, honesty, family, diligence, human rights, tolerance, civil involvement, religion, creativity, collaboration.

Based on the previously described, it is possible to state that one organization may "house" many different systems of value, therefore the common organizational identity can be considered only if fundamental values of employees and organization coincide, maintain balance and complement each other. When values contradict each other, employees fall in conflict with organizational values, thus arising hidden or open conflicts between different groups' or separate employees' values, which may have negative impact on employees' performance, as well as work of structural units or organization in general.

Respondents have been treated and listed according to respondents' views on the following statements given and assessed a five-level Likert scale (from 1 to 5, where 5 is the highest point), and then structured according to Barrett's (Barrett, 2006) "The Seven Levels Model of human consciousness".

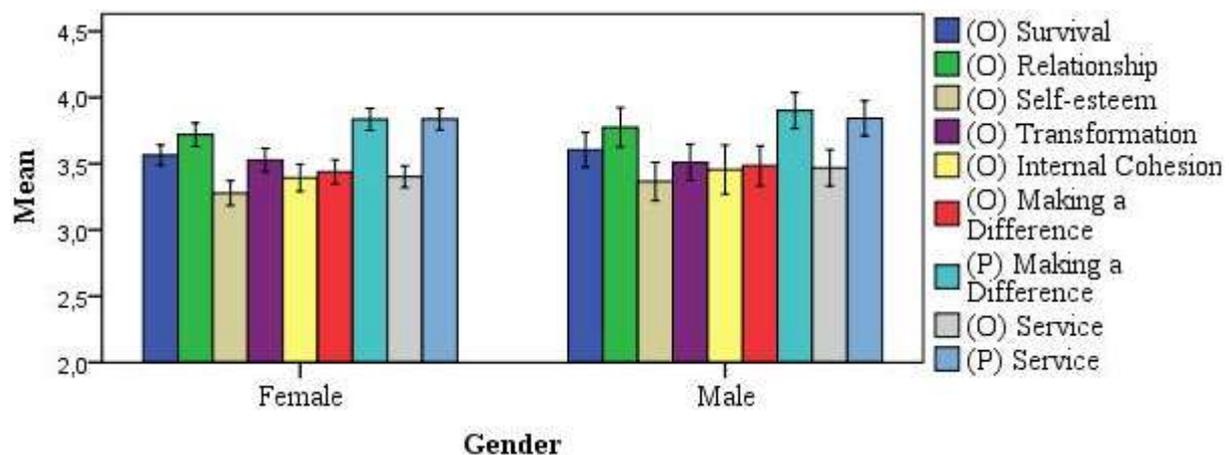


Figure 1. Model of Consciousness level depending on respondents' gender.

The analysis of "The Seven Levels Models" (Figure 1.) proves that regardless of gender, it is "Relationship within the organization" that has significant impact on organizational culture. Development of relationship in the organization depends on different factors, where the most important factor is "honest and fair attitude of the organization management towards its staff".

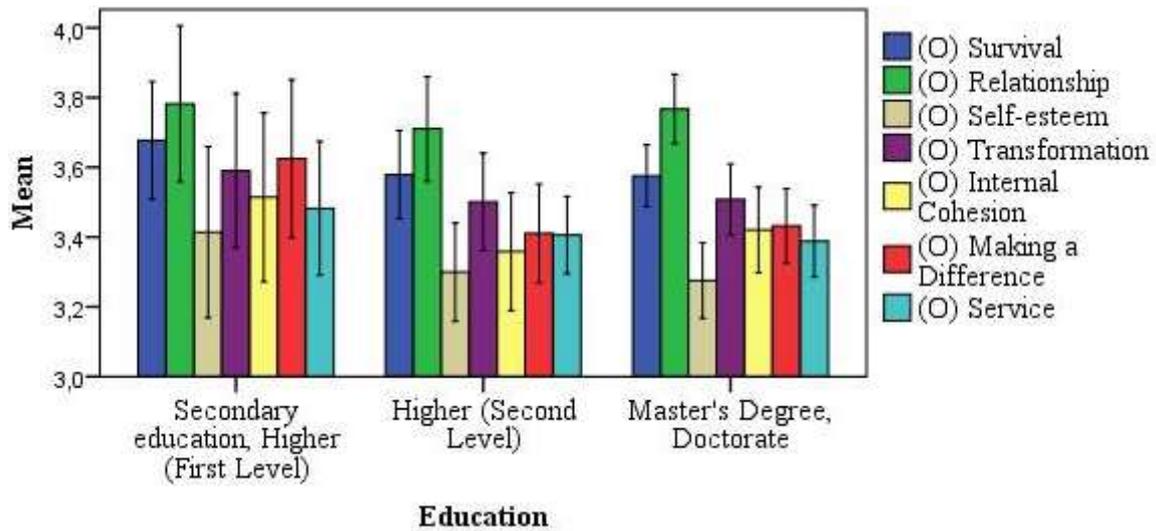


Figure 2. Model of Consciousness level depending on respondents' education.

The analysis of the results points out that *the Seven Levels* division into education levels is relatively equal, therefore makes it possible to claim that regardless of education, employees of the public sector are concerned about harmonious mutual relations and positive internal communication. With regard to the level of attitude awareness, it is crucial to ensure employees' loyalty and cultivate their sense of belonging, whereas managers have to take interest in promoting open communication, mutual respect and recognition of employees' efforts and contribution.

Clustering method has been applied for the analysis of the research results. Clustering represents a method of exploration and dividing data into groups (clusters), which otherwise are not possible to figure out. The task of cluster analysis is to group observations (in the analysed case - respondents) into meaningful subgroups (clusters) depending on the determined factors (Survival, Relationship, Self-esteem, Transformation, Internal Cohesion, Making a Difference, Service). Within one cluster respondents' evaluations are more similar to each other than those in other clusters (Figure 2).

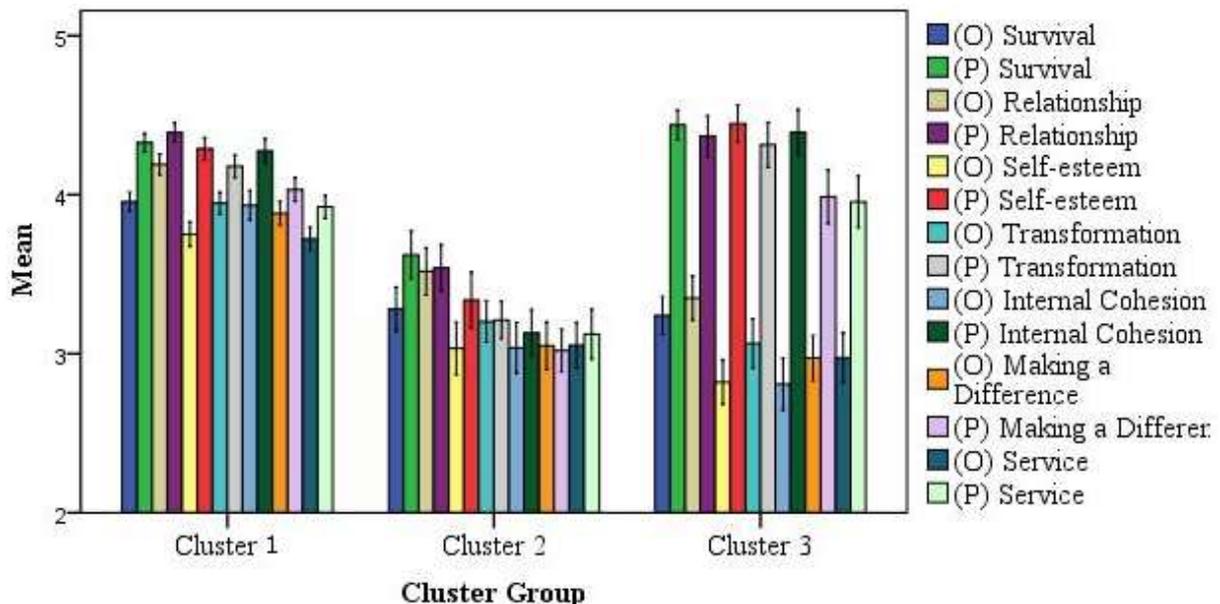


Figure 3. Assessment of Levels according to credibility (O) and importance (P).

The age of respondents of the 1st cluster group varies from 22 to 63 years old with a relative average of 42 years old, whereas the 2nd cluster group includes respondents aged 46,6 and the third group respondents are 41-year-olds. Variance analysis has been applied (Analysis of variance (ANOVA)) in order to compare the average age of specified cluster groups. According to F-criteria, the observed age differences are statistically significant ( $F=4.308$ ;  $p=0.015$ ).

The total work experience of the 1st cluster is 19 years, in the 2nd cluster it comes to 22 years and in the 3rd - 18 years. According to the variance analysis results, these differences are not statistically important ( $F=1.751$ ;  $p=0.176$ ). Work experience in the last job which is also the survey target amounts to 8.5 years in the 1st cluster, 10.5 years in the 2nd cluster and 9 years in the 3rd cluster. This data also does not present statistical significance ( $F=1.6$ ;  $p=0.204$ ).

The highest level of education is observed in the second cluster, where 82 % of respondents have Master's degree. The 1st cluster includes 50 % of Master-respondents, whereas the 3rd cluster – 53 % of Masters. According to  $\chi^2$  criteria, this difference is statistically significant (Pearson Chi-Square Asymptotic Significance (2-sided)  $p=0.001$ ). There are no statistically important differences of gender composition between groups. Among respondents there were about 70 % of women, classified in clusters at the same ratio.

Classification by posts reveals the following results: the 1st cluster includes 71.9 % of Labourers, 13.3 % of Leaders, and 13.3 % of Deputies. The 2nd cluster is formed of 66 % of Labourers, 14 % of Leaders and 20 % of Deputies. In the 3rd cluster there are 71.4 % of Labourers, 12.2 % of Leaders, 10.2 % of Deputies. However, according to  $\chi^2$  criteria these differences are insignificant ( $p=0.78$ ).

The analysis of results based on Clustering enables to conclude that in the organization there exist 3 groups of employees: the first group gives high evaluation to the personal and organizational values in all seven levels. The second group assesses organizational values as average, though the importance of their personal values is also not emphasized. The third group gives average assessment to organizational values, but their own personal values reflect high importance in all seven levels.

Employees of the first group give high evaluation both to credibility of statements and personal importance (ranging from 3.5 to 4.5), however the deviation is not substantial. Considerable difference appears in the 1st level "Survival" and 3rd level "Self-esteem". Employees of the second group equally assess credibility of statements and importance of statements, except for the 1st level "Survival" and 3rd level "Self-esteem". Most likely they are not quite demanding both to the organization and its culture. On the other hand, the level of organizational culture is also mostly insignificant for them. In its turn, employees of the 3rd group show difference in all levels between credibility of statements and importance personal values (Figure 3). This shows that the level of organizational culture is different from the level personal values. The respondents of this group consider that even though the statements of all levels are important for them, the level of organizational culture does not meet their requirements. The respondents of the 3rd group give much lower evaluation of the organizational culture than respondents of other groups, in its turn the 3rd group respondents show much higher the assessment of personal values.

The 3rd group respondents give the lowest assessment to "Self-esteem" and "Internal Cohesion" levels; this suggests that in this organization the decisions are made and directed "from above", and possibly exists bureaucracy and control. The important issue of the "Internal Cohesion" level is building common vision of the future and common system of values.

The research results indicate that employees' assessment of the level of organizational culture depends on their own personal vision, their life and work experience, personal values and needs.

The research data enables development of the instrument, which will be applied to assess and improve organizational culture both in private and public sector.

## Conclusion

Each organization has the culture mainly created by its management. Therefore, the management of the organization has to promote alignment of personal and organizational values.

The basis of value-oriented organization is recognition - any value and any style of behaviour can be related to one of the seven levels of consciousness. Everything the organization seeks to achieve and strives for is a reflection of the organizational collective conscience, therefore harmonization of values plays a significant role in development of an organization.

The research results state:

1. The developed survey has been adapted and tested for the needs of Latvian organizations; based on the survey it is possible to develop an instrument for improvement and advancement of

organizational culture in Latvia. In general, the research suggests three groups of organization's employees, where employees of the 1<sup>st</sup> group equally rate personal and organizational values, 2<sup>nd</sup> group shows equally low level of importance, whereas the 3<sup>rd</sup> group reveals disbalance of personal and organizational values.

2. In total, organizational values correspond to the system of values of employees, however, the results show that employees show concern of values of Survival, Relationship and Self-esteem levels, which should not be ignored.
3. The research results reveal that the 3<sup>rd</sup> group respondents do not consider alignment of their values with the organization; thus, the organization lacks loyal staff and employees do not feel an integral part of organization and unable to realize their potential.
4. Organization's management is advised to make assessment of organizational values and make appropriate improvements (for instance, improvement of structure, procedure) with follow-up re-assessment of organizational culture values.

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## Assessment of Selected Opinions of Agriculture Students of Rzeszow University in Poland, in the Context of Education for Sustainable Development in Rural Areas

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**Abstract:** The article presents selected aspects of organizing sustainable development in rural areas, as well as a growing trend for personal development, highlighting the close relationship between the two. The aim of the present study was to analyse the opinions of chosen respondents, concerning their own motivation for implementing sustainable development, their willingness to learn and belief in their abilities - important aspects of effective and lifelong education in a knowledge-based society, for the good of the individual as well as the local and global community.

Agriculture students of the University of Rzeszów (Poland) were surveyed. They responded to 10 closed questions. They were motivated to implement sustainable development by changing their daily habits by knowledge about the increasing rate of biodiversity loss (32 %), knowledge of the poor quality of the environment (26 %) and economic incentives (29 %). They believed that in order to build a sustainable world the most needed were: information and knowledge (74%) and responsibility (61 %) followed by ecological culture (48 %); they believed that self-knowledge and self-improvement were part of building sustainable development. As the most important thing, 65 % of respondents indicated the constant search for a balance between self-care, caring for others and nature.

The results of the study provide a diagnosis of students' motivations and gives the concerned educators some hints how to conduct their classes and lectures. This is also significant as an aspect of organizing effective and long-lasting education, which is an important basis for implementation of sustainable development also in rural areas.

**Keywords:** sustainable development, personal development, rural areas, university education.

### Introduction

The concept of sustainable development was formulated, accepted and introduced to the world vocabulary by the United Nations international bodies in 1992. It is now the basis for changes that lead to improved living and working standards of the communities around the world. It is a complex concept and includes equally valuable environmental, social and economic areas, which should be understood as fundamental and spread on further levels such as cultural, legal, organizational, moral, emotional and philosophical. The principles of building sustainable development must be continually presented and extended to youngsters, adults and elderly people - both in urban and rural areas. The latter in particular being usually valuable natural resources should be inhabited by people who care about the balance in natural and socio-economic development.

In the years 2004-2014, the World Decade for Education for Sustainable Development was implemented, and the Biological Diversity Decade has been launched for the period between 2011 and 2020. Due to the gravity of the problem, the issue of sustainable development should be known to the general public with a particularly compelling need to rescue ecosystems and biodiversity. The urgent need to stop biodiversity loss has been highlighted (Rockstrom et al., 2009; Kostecka, Cyrankowska, 2017).

Schools at different levels of education and universities must be involved in disseminating the knowledge. They should be supported by the actions of local governments, whose workers must be convinced of the need to slow down the biodiversity loss. Acceptance of responsibility for a broadly understood environment is a must, while involvement in this issue should also encompass businessmen and workers in the workplace, starting with engineers at the drawing boards developing innovative projects as part of the development of solutions for the broadly understood ecological engineering.

Other occupations crucial for the issue of sustainable development are those related to agriculture. The new participants in this space are educated in the field of agriculture at Rzeszów University. Their education should therefore be broad and effective. What makes education effective? As indicated by

many studies (Glasser, 2010; Zimmerman, Bonner, Kovach, 1996; Robinson, 2010), it is to a large degree about students' intrinsic motivation, awareness and trust in their own efficacy and efficiency.

The aim of the present study was to analyse the opinions of the agriculture students of Rzeszów University, concerning their own motivation for implementing sustainable development, their willingness to learn and belief in their abilities - important aspects of effective and lifelong education in a knowledge-based society, for the good of the individual as well as the local and global community.

### Methodology

The paper is based on a problem study and analysis of selected literature. The authors have also set themselves the goal of studying the opinions of agriculture students at the University of Rzeszów (Poland) on selected issues relevant in the context of sustainable development (SD).

A survey was conducted with 62 randomly selected students from 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> years of Agriculture at the Faculty of Biology and Agriculture, University of Rzeszów. There were 26 women and 36 men participating.

They responded to the following 10 closed questions: (1) What motivates you to implement sustainable development by changing your daily habits? (2) What do you think is needed to build a sustainable world? (3) Which option is most important to you? (4) Do you feel the need for continuing education? (5) Is building sustainable development of your own environment a priority in your life? (6) Do you think that self-knowledge and self-improvement are part of building sustainable development? (7) How do you understand self-improvement? (8) Do you think you have the power to build sustainable development? (9) What is your current average grade of studies? (10) Would you like your average grade to be higher?

The responses had been analysed and then presented in tables and a graph (in percentages). The percentages are calculated in relation to the number of subjects in the groups of males (M) or females (F) and the total of all respondents.

### Results and discussion

Restrictive use of natural resources is nowadays difficult to accept by many people and strictly respected after previous legal imposition, could foster a number of conflicts.

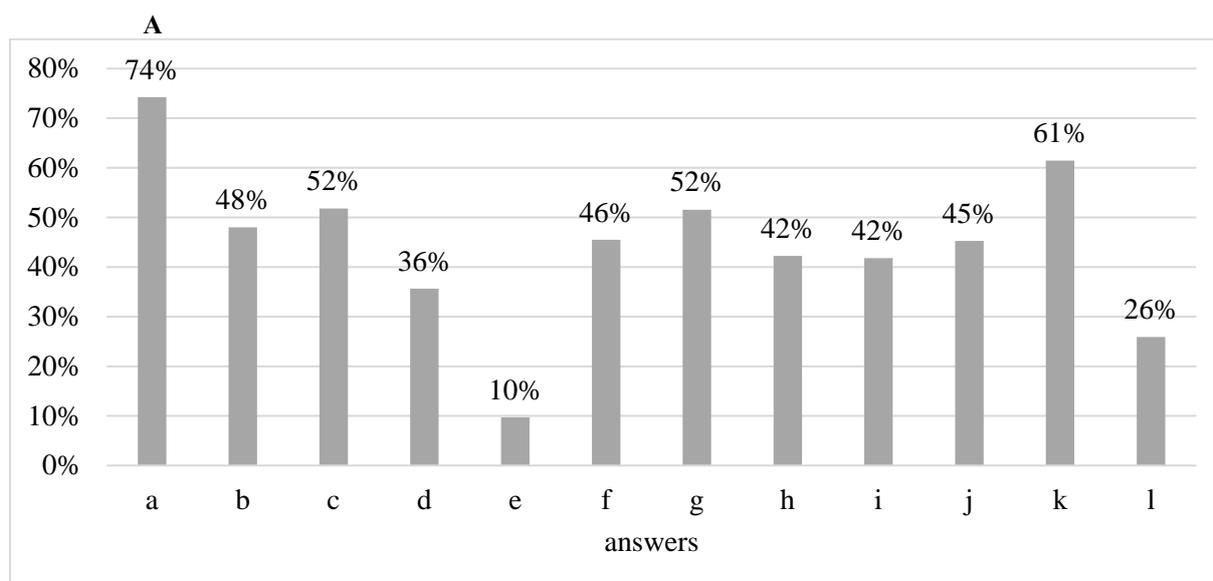
As the results of the survey show, what motivates the respondents to implement sustainable development by changing their daily habits are the following factors: knowledge about the increasing rate of biodiversity loss (32 % of indications), knowledge of the poor quality of the environment (26 %) and economic incentives (29 %). The responses of men and women were similar (Table 1).

Table 1

**The respondents' answers about their motives to implement sustainable development by changing their daily habits (general and gendered)**

Motives	Distribution of responses (%)		
	M	F	Total
Law enforcement in this regard	-	-	-
Knowledge of the poor quality of the environment	28	23	26
Examples of other members of society	16	8	13
Knowledge of the increasing rate of the biodiversity loss	28	38	32
Economic incentives	28	31	29
Other (what)	-	-	-

The surveyed students believed that in order to build a sustainable world the most needed were: information and knowledge (74 %) and responsibility (61 %) followed by ecological culture (48 %), social culture and openness to other perspectives and openness to other values (Figure 1). The fewest of them appreciated self-knowledge and self-reliance. The surveyed women most differed from the surveyed men in their attitude towards self-awareness (this trait was chosen as an important factor by over twice as many women as men).



B		M	F
a	• information and knowledge	78	69
b	• ecological culture	39	62
c	• social culture	56	46
d	• economic culture	39	31
e	• self-knowledge	11	8
f	• self-awareness	56	31
g	• openness to another point of view	44	62
h	• openness to other values	28	62
i	• openness to change your views	33	54
j	• openness for a change of lifestyle	39	54
k	• responsibility	56	69
l	• self-reliance	28	23

Figure 1. The respondents' answers about factors needed to build a sustainable world [%] (A – total; B - males and females).

As the most important thing, the largest group of respondents (women and men alike) indicated the constant search for a balance between self-care, caring for others and nature (65 % in general) (Table 2). Only women selected taking care of others (Table 2).

Table 2

**Opinions of respondents about the balance between caring for oneself, others and nature**

Criteria	Distribution of responses (%)		
	M	F	Total
Taking care of yourself	17	15	16
Caring for others	-	15	6
Caring for nature	11	15	13
Constant search for the balance between those mentioned above	72	55	65

Analysing results from the study data "definitely yes" and "yes" are counted together. The students surveyed claimed that building sustainable development of their closest environment was one of their important priorities (56 % of men and 61 % of women) (Table 3). This was mainly the response of older students who had the opportunity to consider the issues of sustainable development in several successive

courses (philosophy of nature, ecology and environmental protection, waste management, agribusiness and sustainable rural development). This is because one of the authors of the article had the opportunity to have more than 10 years of experience with UNEP and UNESCO educational programs (CCN, 2006; PERL, 2017) and learn about sustainable development. She also gained a deep belief in the importance of education in this area.

The respondents believed self-knowledge and self-improvement were part of building sustainable development (77 % of men and 77 % of women) and felt the need for continuous education (61 % of men and 62 % of women) (Table 3). Half of the surveyed men (50 %) and women (46 %) thought they had the power to build sustainable development.

Table 3

### Respondents' answers to the subsequent questions of the survey (gendered)

Indicator	Question and distribution of responses (%)							
	Is building sustainable development of your own environment a priority in your life?		Do you think that self-knowledge and self-improvement are part of building sustainable development?		Do you feel the need for continuous education?		Do you think you have the power to build sustainable development?	
	M	F	M	F	M	F	M	F
Definitely yes	6	15	22	38	17	31	-	-
Yes	50	46	55	39	44	31	50	46
I do not know	33	31	17	15	28	31	50	46
No	11	8	6	8	11	7	-	8
Definitely not	-	-	-	-	-	-	-	-

It should be emphasized here that not only senior students thought so. First and second year students have contact with the second author of the article – an English tutor. The co-author of this article pays great attention to presenting students with personal development issues. It seems that what she does makes sense, and the answers to the question: How do you understand self-improvement? (shown in Table 4) appear to be consistent with the answers to the previous question. Among the proposed answers, the students chose mainly: gaining new information (49 %) and increasing knowledge (39 %) (Table 4).

Table 4

### Respondents' awareness of self-improvement

Criteria	Distribution of responses (%)		
	M	F	Total
Physical development	6	-	3
Obtaining new information	49	46	49
Growth of knowledge	39	38	39
Spiritual development	-	8	3
Other (what)	6	8	6

Interpreting subsequent questions of the survey (Table 5), it can be emphasized that among the respondents the majority of the students were quite ambitious (72 % male and 92 % female).

As urgent as it is, the organization of social life in line with the concept of sustainable development, including the effect of slowing down the use of natural resources and biodiversity protection (Kostecka, 2013), cannot be achieved too quickly because it cannot be enforced against the currently existing trends. A number of actions are being taken to develop healthy ecosystems and restore their function, and above all, to raise people's awareness and foster their attitudes to allow for the strategic protection of ecosystem services. Farmers, as properly educated users of the environmentally valuable rural areas, must also support these actions.

Table 5

**Distribution of responses to the final questions of the survey (%)**

Students current average grade of studies	3.0		3.5		4.0		4.5		5.0		
	M	F	M	F	M	F	M	F	M	F	
	-	8	22	38	61	54	17	-	-	-	
Ambition to have better grades								M	F		
		Definitely yes						39	54		
		Yes						33	38		
		I do not know						17	-		
		No						11	8		
		Definitely not						-	-		

Due to the need to exchange experiences with foreign partners in the field of building sustainable development, what is vital is not only knowledge of sustainable development but also language education (Kostecka, 2012; Kostecka, Cyrankowska, Piersiak, 2016) and consumer education (Kostecka, Mazur, 2012).

In the flood of information, it is easy to miss what is important. Is contemporary education adapted to the changing world, and does the university prepare competent staff to meet the challenges of the 21st century? Does it develop personality and creativity (Robinson, 2010), does it inspire self-learning (Zimmerman, Bonner, Kovach, 1996), does it stimulate thinking and sense of responsibility for one's own conduct, does it indicate ways of effective learning and problem solving, how about stress management or time management? Is it possible to develop a healthy sense of self-efficacy in young people (Zimmerman, Bonner, Kovach, 1996), and consequently their self-esteem and self-confidence? In addition to imparting current knowledge of high quality and usefulness, university education should also develop the desire to learn and build self-awareness and social knowledge, as well as good interpersonal relationships based on mutual trust and respect (Glasser, 2010).

### Conclusions

The current publication describes selected opinions of students of Agriculture studying at the University of Rzeszów in Poland, in the context of education for sustainable rural development. It provides a diagnosis of its selected features and gives the concerned educators some hints on how to conduct the classes and lectures in the future. It seems that the students participating in the research, having some contact with the issues of sustainable development in different contexts during their educational cycle, have acquired the right understanding of the term and its elements. The results of the survey also clearly show that the students see a clear link between self-growth and care for sustainability, both of which complement each other and involve people's awareness, openness and responsibility.

When planning subsequent research, one could wonder if the positive traits depicted in the results of the present survey are only surface-like and short-lived or are they the foundation for a deeply rooted ecological / sustainable development culture? It would also be interesting to see the results of the survey of students of another university, whose lecturers did not have the opportunity to study the principles of sustainable development for over 10 years and acquire the profound conviction of the importance of education in this field.

During the 1st World Summit on Sustainable Development in Rio de Janeiro in 1992, the leaders of most countries pledged to implement sustainable development into the organisation of social and political life. However, 25 years have passed and most people in the world have not heard of this way of organizing social life - let alone its active implementation.

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## The Factor of Finance and Entrepreneurship in Terms of Human Capital Development

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**Abstract:** The paper focuses on the analysis of the formation of human capital, already in the formal education stage in terms of the assessment of the importance and motivational level of the cross-sectional integral component of finance and entrepreneurship. Based on the content analysis and the discourse of the relevant contemporary trends in the Czech Republic, the authors present an original model of support of financial literacy and leadership for entrepreneurship on the case study of the implementation of courses of the Practice Enterprise, as it is implemented under the terms of study programmes at the University of Economics in Prague. Hypotheses have been formulated to confirm or disprove the effectiveness of this model of human capital formation from the perspective of preferences, motivation, and target satisfaction of clients in education. The programme's underestimated importance of practice, given by the limited use of the courses of the Practice Enterprise as a practically oriented optional subject, for the formation of financial education and for entrepreneurship education, has been proved. At the same time the positive motivation, the satisfaction of students, the functional ability of the model and the importance of entrepreneurship and financial literacy for the creation of desirable human capital for further professional and entrepreneurial careers of education clients has been proved as well.

**Keywords:** economy, entrepreneurship, financial literacy, human capital, education, integrated forms of teaching, Practice Enterprise.

### Introduction

The largest wealth of organizations is qualified and motivated people - employees. Human resources bring innovation, creativity, development and are a guarantee of sustainability and competitiveness. Human capital as part of intellectual capital is a specific combination of intelligence, knowledge, skills, habits, attitudes, abilities and experience. Human capital is non-standard, tacit, and dynamic, depending on the circumstances and the environment of the organization and that is why it is viewed as a multidimensional relationship between applied procedures in human resources management and an achievement of an organization and it is relatively complicated to be evaluated and measured. But it is important to try, because it is an important component in expressing the market value of an organization, that more than 36 % of the yield is attributed to the influence of human capital (Armstrong, 2006).

In terms of maintaining competitiveness and increasing the market value of an organization, in conformity of further stated references, the authors consider the most important formation of financial literacy and entrepreneurship in the initial form of education and in the related transfer of relevant key competences to further education and informal learning of future entrepreneurs and employees. In terms of the Czech economic education system, these functions are guaranteed by the education for entrepreneurship and the implementation of financial literacy. Particularly in the sphere of services, marketing views are also relevant being considered as top criteria (Vavrečka, Mezulanik, 2016).

To define a concrete approach to the issue of financial education at national level, binding financial education strategy is usually formulated; it has also been developed by the Czech Republic since 2007 and can thus be ranked alongside New Zealand, Great Britain, Italy, Spain, Netherlands, Hungary and Slovakia and other countries. In 2011, the OECD started to develop a central financial education strategy as a basis for such countries that do not have a national financial education strategy. The Ministry of Finance, the Ministry of Education, Youth and Sports, the Ministry of Industry and Trade and the Czech National Bank agreed on the following definition of financial literacy: "Financial literacy is a set of knowledge, skills and values of the citizen necessary to financially secure himself and his family in the current society and be actively engaged with the market of financial products and services. A financially literate citizen is well informed about money and pricing issues and is able to manage the personal / family budget responsibly, including the management of financial assets and financial commitments with regard to changing living conditions" (Narodni strategie financniho..., 2010). The National Financial Education Strategy 2010 (hereinafter referred to as the Strategy) states that financial education is an instrument to increase the level of financial literacy, allowing citizens of the Czech Republic as consumers to work adequately with information on the financial market to meet their

family needs and their own needs, taking into account changing living situation. Financial education is also a key element in consumer protection in the financial market. The strategy says that only a well-informed, educated citizen as a consumer with a well-balanced position in a contractual relationship is a full-fledged financial market participant and is able to make responsible choices. Financial education in the rapidly evolving area of financial products and services is essential for accepting the citizen's own responsibility for the financial security of himself and his family. In the wider context, financial education also contributes to the awareness of the socio-economic consequences of society, especially with regard to preventing over-indebtedness and providing for people at the retirement age. Orientation in the financial area, dealt with as monetary, price and budget literacy, is adequately passed on the performance of the employees' in the given job or on the financial qualification of the entrepreneur's decision. The document shows that, last but not least, it contributes to the development of the Czech economy, society as such and sustainable development. The strategy shows the lack of financial literacy as one of the possible trigger mechanisms of the 2008 financial crisis in the US. At present, when this crisis has been overcome, there are still alarming phenomena prevailing in the society such as public indebtedness, the growth of outstanding claims and the execution of property of individuals. In view of these factors, greater emphasis should be put on the financial education of the Czech people itself and especially on its quality (Narodni strategie financniho..., 2010).

Public surveys show that there are more than a third of the households in debts in the Czech Republic. There is a causal relationship with insufficient financial literacy. More than 80 % of Czechs report that they did not learn any knowledge of finance field at school (Sipkova, 2013). The results of many other studies confirm that the level of financial literacy is not at the desired level - e.g. STEM/MARK, 2007 carried out survey with 1,005 respondents on knowledge in the field of finance. It has been found, for example, that 45 % of respondents draw up a budget and only  $\frac{3}{4}$  of them try to keep it; only 35 % of respondents know the difference between credit and debit payment cards; 65 % of respondents pay their bills on time and 60 % of respondents understand the concept of inflation; a third of respondents does not set any money for retirement aside (Financni Gramotnost: Kvantitativni..., 2007). PPM Factum carried out research (Vysledky mereni urovne..., 2015; Hradil, 2010), primary objective of which was to get an idea of endangered target groups and financial literacy reserves. 1,000 respondents were approached. It was for example found out that 48 % of respondents have a high or rather high level of financial literacy, while 52 % of respondents have low or rather low financial literacy; there is also an evidence of dependence on education (the higher the education, the higher the knowledge) and also the income (the higher the income, the higher the knowledge); 64 % of respondents show low or rather low economic responsibility, dependence is reflected in relation to education, age, household income and economic activity; a very strong correlation (dependence) between financial literacy and responsible economic behaviour has been identified; only 13 % of respondents, especially 30-44 years old mainly university graduates and/or with high financial literacy and entrepreneurs rate their financial literacy as a good one (Vysledky mereni urovne..., 2015). The Czech Banking Association (CBA), using the SC and C Agency, carried out research on financial literacy in 2017. 1,037 respondents of 18 years of age from all over the Czech Republic participated in the survey. It was found that the financial literacy of the Czechs continues to be on average level; only the average knowledge was reported in the financial literacy test, and the CBA's Total Financial Literacy Index reached 55 out of 100; e.g. 39 % of respondents state that the recommendations of financial advisors are incomprehensible for them; 14 % of respondents do not know where to find information about money or they have problems with numerical tasks and figures stated in percent. Nearly a quarter (22 %) of respondents admitted that they do not understand the world of finance at all (Financni gramotnost Cechu..., 2017). There is still not enough emphasis on financial education in our schools as it would deserve. Teaching financial literacy can be associated with fears in many educators. For example, few teachers were able to meet financial education during their undergraduate training. It is not always that the aspect of financial literacy is appropriately transferred from the level of the basic curriculum (Framework Educational Programme) to the relevant school curriculum. Frequently, this transfer is only formal, concentrated in one subject and not across the whole curriculum. Nevertheless, there are teachers who devote their potential to developing interesting lessons and projects in which they develop the financial literacy and entrepreneurial skills of their students. The concept of financial literacy is closely linked to the area of entrepreneurship. Business is a representation of a human skill which is entrepreneurship. It is above all art, ability and motivation to discover, create and exploit opportunities to achieve the economic effect of an entrepreneurial subject. It is clear that an individual who has a high level of financial literacy is more likely to be successful in business. In 2012, the OECD

conducted a survey PISA (Programme for International Student Assessment) not only in the Czech Republic but also in 65 other countries in the world. More than 6,000 Czech 15-year-old pupils from nearly 300 schools participated. Financial literacy tasks were a voluntary component. Thus, 18 countries participated in the international testing of financial literacy voluntarily. In the Czech Republic 1,200 students were involved (PISA 2012 Results..., 2012). Here is an overview of financial literacy results.

Table 1

### Overview of Financial Literacy Performance

	Mean score in PISA 2012	Share of lowest performers (Level 1 or below) %	Share of top performers in financial literacy (Level 5 or above) %	Gender difference (Score difference)
<b>OECD Average - 13</b>	<b>500</b>	<b>15.3</b>	<b>9.7</b>	<b>1</b>
Shanghai - China	603	1.6	42.6	-1
Flemish Community (Belgium)	541	8.7	19.7	11
Estonia	529	5.3	11.3	-3
Australia	526	10.4	15.9	-3
New Zealand	520	16.1	19.3	3
<b>Czech Republic</b>	<b>513</b>	<b>10.1</b>	<b>9.9</b>	<b>6</b>
Poland	510	9.8	7.2	3
United States	492	17.8	9.4	1
Russian Federation	486	16.7	4.3	1
France	486	19.4	8.1	-6
Slovenia	485	17.6	5.8	-8
Spain	484	16.5	3.8	6
Croatia	480	16.5	3.8	5

Source: (PISA 2012 Results..., 2012).

As we can see at Table 1, Czech pupils have achieved 513 points and are ranked sixth among the tested countries. Considering the OECD average of 500 points, this result can be considered above average. Average point earnings were exceeded by 2.6 percentage points. At the same time, the Czech Republic has a significantly lower share of pupils whose results have fallen into the weakest group and whose knowledge is at or below the minimum level. This is a positive sign that education in the area of financial literacy has taken the right course recently. Despite of this result, according to many business organizations, the development of educational activities and counselling obviously lags behind the needs of the business sector, small and medium-sized enterprises in particular. A serious problem is the perceived lack of communication between schools that prepare graduates for practice and the business sphere. For doing the business any state has to create conditions, but also entrepreneurs themselves have to meet certain conditions or assumptions. They can be divided into two groups:

***Objective assumptions** are given by external and internal entrepreneurship. External entrepreneurship is linked to the creation of a competitive business environment by the state, internal entrepreneurship is related to the using of the economic opportunities provided by the market economy.*

***Subjective assumptions** arise from personality characteristics or a trait of character of an entrepreneur among which the priority ones include the need to succeed, the ability to undertake risk, the positive view of yourself, the initiative and independence, the ability to solve problems, the optimistic view of the future, the setting of demanding goals that to a large extent should be quantifiable, natural authority and a high level of financial literacy.*

School education can make a significant contribution to making school-to-work transition as smooth as possible by establishing closer cooperation with employers in regions in the development of school education programmes; schools will adjust the content, forms and methods of teaching as close as possible to the real needs of employers and will organize students' practices in real-world work

environments. The closer the cooperation is, the better the school will be able to respond to the needs and demands of local employers, and the education system will prepare future graduates with the competence to do business or get a job as an employee where they can adapt quickly and efficiently (Krpalek, Krpalkova-Krelova, 2016).

### **Cultivating human capital as an education focused on entrepreneurship and financial literacy**

An essential requirement is the systematic development of creativity already under the conditions of formal education, with the teacher having a decisive influence. Streamlining the creativity development at school implies improving teachers' knowledge of creativity, including creativity in the preparation of future teachers. Most authors state that creative teachers also have creative pupils. To work in a creative way the teacher should encourage creative climate on lessons, use activating methods for teaching, communicate and discuss with pupils, promote and develop their self-reliance, lead pupils to create their own ideas and opinions, respond creatively to pupils' views and ideas, require pupils to think in a broader context, encourage divergent thinking of pupils.

The findings of modern pedagogical psychology emphasize the need to increase self-reliance in learning, the need for transition from external controlling to self-regulation. The majority of teachers accentuate the dialogue and the wider use of teaching methods based on activation and co-operation, so methods to make the pupils build their knowledge of activity and communication themselves and not being a passive receiver to develop their ability to communicate, collaborate and learn. For these reasons, it is indisputable that the importance of integrated forms of teaching is growing, project and cooperative teaching and training of future teachers of vocational subjects should capture and accept these trends as a challenge. In order for this conceptual process to proceed well, it is necessary to start generating it from the systemic interconnection of integrated forms of teaching with entrepreneurship education and its integration into the training of teachers of vocational subjects so that it would be possible to design quality educational programmes in teaching practice containing integrated vocational subjects. Integrated learning - learning by doing - is the most effective way of acquiring and using knowledge and developing entrepreneurship. Teacher trainees of vocational subjects have long been learning about integrated forms of teaching, in particular Practice Enterprises, Student Companies (Junior Achievement Programme), Practice Offices, seminars, various forms of business internships in companies and project teaching. The Practice Enterprise is an effective tool for the development of entrepreneurial competences of students of secondary, higher vocational schools as well as tertiary education. It gives them the opportunity to develop actively their acquired business skills and knowledge. It is a virtual company that is guided as if it actually existed. It simulates real processes, products and services (Berkova, Krpalek, 2017).

Research findings in the Czech Republic and from the World Bank have shown high levels of household debt while also indicating the need for higher levels of financial education. Financial literacy and financial instruction in schools would be an effective tool to prevent such developments. There is quite clearly a good reason for financial education in schools today and it will also contribute to the world of personal and family finances. Educating new generations in financial literacy presents a very real possibility of eliminating a negative development in society. Improving financial literacy of the population by school education is not in itself without issues but will definitely lead to some level of prevention in managing personal and family finances (Opletalova, 2015).

P. Engstrom and A. McKelvie (2017) have found that financial literacy is an important predictor of financial performance, but not growth, and using role models predicts return on assets, but not other performance indicators. Their results have implications for future work on micro-enterprises and the nature of the human and social capital of their founders. In a meta-analysis of 126 evaluation studies, financial education has been found to have a significant impact on financial behavior and, to an even greater extent, on financial literacy. The success of the intervention is fundamentally dependent on increasing the intensity of education and the provision of financial education (Kaiser, Menkhoff, 2017). The other author's study uses school reforms as intermediaries for the growth of quantitative skills but does not contain any direct quantitative skills or financial literacy. Progress has been made in measuring financial literacy in consumer finance data, which has great potential for offshore use (Brown et al., 2015).

C. M. Sawatzki's and P. A. Sullivan's (2017) research has shown that teachers seem to be distinguished between being financial literate themselves and having pedagogical knowledge and skills to teach students' financial literacy. While more than 75 % of teachers' participants agreed or definitely agreed

to be financially literate, only half of them said they were convinced of teaching financial literacy. The teacher professional learning needs identified by this research relate to curriculum and pedagogy. Hence, they are likely to be best met by experts in teacher education. After all, a clear takeaway from the global financial crisis is that effective financial literacy teaching and learning must instil a healthy scepticism when interacting with the finance industry.

## Methodology

Systematic pregraduate and postgraduate teaching preparation for teachers of integrated vocational (economic) subjects and courses of pedagogical and presentation competencies for teachers at tertiary education is carried out in the Czech Republic by the University of Economics in Prague. In connection with the implementation of the quality management system of education, evaluation of the teaching and learning outcomes has been carried out since 1993. At the end of each term the subject questionnaire is implemented and evaluated. During its existence, it has undergone a number of qualitative changes, yet the focus of this so-called subject poll remains in the assessment of the quality and difficulty of teaching, the contribution of the subject, the professional level of the teacher, or the performance of the teacher towards the students. Students are very open and critical, contributing to the usefulness and effect of this feedback to meet the "continuous improvement" criterion in the quality management system. Students in this survey have long been evaluating the interconnection of college and practice as inadequate, as shown by Table 2 with the most recent survey results.

Table 2

**Fields of Study which have a Compulsory Practice in Curriculum**

University of Economics, Prague (faculty)	Number of Study Fields	Number of Students in these Disciplines
Faculty of Finance and Accounting	3	677
Faculty of International Relations	1	204
Faculty of Business Administration	0	0
Faculty of Informatics and Statistics	0	0
Faculty of Economics	0	0
Faculty of Management	0	0
<b>Total</b>	<b>4</b>	<b>881</b>

Source: (Annual Report of..., 2016)

The number of graduates graduated in 2016 in the University of Economics database is 1,583, which means that only 55 % of the graduates have undergone compulsory professional experience training throughout the course of the study. It is clear that in order to improve the quality of the University of Economics graduates, it is necessary not only to increase the share of professional experience training, but also during the course of teaching to apply teaching strategies such as project teaching, simulation and situational methods, case studies, which develop entrepreneurial, social, communication competencies and support financial literacy.

The authors think the core is in the active engagement of students, who should create concepts, ideas and solve projects, include "real world", include clear assessment criteria, use higher levels of thinking, creativity and assess not only knowledge, but also competencies and skills. We have also dealt with this matter at the Department of Teaching Economic Subjects at the Faculty of Finance and Accounting at the University of Economics and we have prepared an accredited full-time optional subject called Practice Enterprise. For foreign students, English version was prepared as well.

The subject is taught in the form of simulation of business activities. The curriculum is focused on methods of work in the practice enterprise, stages and principles of team work, creation of a team and team roles, establishment of a company, creation of a business plan, establishment of an organizational structure of a company, putting team members in departments according to team roles, organizing company activities as contractor-customer relationships, purchase, storage, sales, management of payment and settlement transactions, human resources management, preparation of financial statements and documentation in relation to the tax office and final evaluation of the results of business activities. The focus, in addition to leading students to become entrepreneurs, is the support of creation of a high level of financial literacy.

**Our main objective** was to identify students' attitude towards the quality of teaching the subject Practice Enterprise by students of the University of Economics in Prague through diagnostic research.

#### Research hypotheses:

- H1: We assume that most respondents will rate the content of the subject as interesting.
- H2: We assume that most respondents will evaluate that they have learned a lot of new information.
- H3: We assume that most respondents will be satisfied with teaching of the subject.

#### Method of research:

The research method was an evaluation questionnaire containing 9 questions, out of which 6 were closed and 3 were open.

#### Respondents to research:

Total n = 103 students out of 224 who passed the subject in the studied period participated in the research in the academic year 2015/2016 (winter term and summer term) and 2016/2017 (summer term), which means that 46 % of students were willing to fill in the questionnaire.

#### Results and Discussion

From the carried out diagnostic research, as shown by Tables 3 – 5, it is clear that the majority of respondents (students of the subject Practice Enterprise), i.e. 76 % (winter term 2015/2016), 90 % (summer term 2015/2016) and 85 % (winter term 2016/2017) evaluated the subject as interesting so H1 hypothesis is confirmed. Furthermore, most respondents have positively evaluated the content of the subject and the amount of knowledge and skills gained: 61 % (winter term 2015/2016), 86 % (summer term 2015/2016) and 75 % (winter term 2016/2017). The results confirm the validity of H2 hypothesis. Last but not least, the majority of respondents, 85 % (winter term 2015/2016), 90 % (summer term 2015/2016) and 82 % (winter term 2016/2017) were satisfied with the quality of the subject Practice Enterprise, i.e. the results confirm the validity of H3 hypothesis.

Table 3

#### Interesting content of the subject Practice Enterprise

	2015/2016 (Winter Term) %	2015/2016 (Summer Term) %	2016/2017 (Summer Term) %
Completely Agree	34	69	52
Agree	42	21	33
Agree to Certain Extent	20	7	15
Disagree	2	3	0
Completely Disagree	2	0	0

Source: own research

The quantitative results from the assessed subject students' polls are complemented by qualitative data from the three open questions to which students answered ad hoc expressing their specific positive and negative comments and opinions. The most common reactions are stated lower.

Table 4

#### I have learnt a lot of new information

	2015/2016 (Winter Term) %	2015/2016 (Summer Term) %	2016/2017 (Summer Term) %
Completely Agree	22	55	39
Agree	39	31	36
Agree to Certain Extent	27	3	21
Disagree	10	10	3
Completely Disagree	2	0	0

Source: own research

Table 5

**Overall assessment of the subject's quality of Practice Enterprise, i.e. satisfaction with teaching.**

	2015/2016 (Winter Term) %	2015/2016 (Summer Term) %	2016/2017 (Summer Term) %
Completely Agree	44	66	58
Agree	41	24	24
Agree to Certain Extent	7	7	18
Disagree	7	3	0
Completely Disagree	0	0	0

Source: own research

**What did you like about the subject Practice Enterprise?**

- Teamwork and connection with real life.
- I was really enthusiastic about this subject. It was a great idea. Finally, something practical. Everybody is talking about setting up a business, but having a chance to try it out, even if it was in a temporary setting, was great experience.
- Another learning style in the form of a project, no learning by heart, but using the acquired information in an entertaining way.
- Teacher's helpful approach.
- There should be more practical subjects like this.

**Is there anything you did not like about the subject Practice Enterprise?**

- In particular, the course concept, I expected something more for university students. This concept reminds me more of secondary school, copy documents, fill in forms.
- Within the team work, there was no time to study the work done by other team members
- Many students in the group some students did not have much work.

**What would you recommend to improve?**

- Focus on the practical side of business start-up, what the real problems are in real companies. How to get money, how to put together a detailed and clear financial plan, a strategic plan.
- Divide the work for departments more evenly.
- It would be good if the accounting department had instructions on how to work with Pohoda's computer program for easier and faster work.
- Reduce the number of participants in the group.

**Conclusions**

The following is considered as confirmed: the integrated forms of teaching, the most useful of which are the Practice Enterprises, have a **positive impact on the motivation to learn**, they also **contribute significantly to the interconnection of theoretical knowledge with practical skills and abilities**. They contribute to the **formation and desirable development of human capital** in formal education and **create prerequisites for informal learning, entrepreneurship and a high level of financial literacy** of the target group.

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## The Handicraft Teachers' Habits in Choosing and Using Courses of Continuing Education

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**Abstract:** Becoming a professional teacher is an everlasting process. Its aim is to achieve a mastery of teaching and the ability to see the links of educational work that a beginner teacher doesn't notice. Teachers' development is supported by continuous training. The aim of current study was to find out the habits of handicraft teachers in choosing and using courses of continuing education. The current study used questionnaires and interviews with teachers. The results of our research show that handicraft teachers engage in further training, but it is mostly connected with developing their practical skills rather than acquire didactic knowledge. The reason for that can be seen from two aspects. Firstly, handicraft for handicraft teachers is both work and a hobby. They want to combine possible training courses with their personal interests. Secondly, older generation of teachers are used to participate in practical vocational courses.

**Keywords:** school education, handicraft teachers, teacher's professionalism, continuing education.

### Introduction

The profession of a teacher is complicated, interesting and responsible. Skill of a pedagogue determines the basic mutual relationship between the student and the material: how the students understand the subject, and how the taught subject helps to develop a dignified personality (Phelan, Locke-Davidson, Cao, 1992, Mullock, 2003, Malik, Bashir, 2015). Today's teachers must be innovative to engage and inspire 21st century learners (Lifelong Learning is..., 2015). According to the Estonian Teacher Education Strategy, a competent and effective teacher is able to create a democratic and safe classroom environment (The Estonian Teacher..., 2012).

Being a teacher means teaching, responsibility for children and their studies and development, which is born in the communication between the teacher and the student (Sarv, 2008; Teacher professionalism, 2012). Also, being a teacher is tightly connected to education, taking place in the relations with the student, where personal behaviour of the teacher has major role (Brownell et al., 2006; Loogma, Keskula, Roosold, 2010; Lofstrom et al., 2010; Wilkins, 2014). Creating a sense of self as a professional is an important stage in developing an effective teacher (Thomas, Beauchamp, 2007).

Changes in education and society set new requirements to the profession of a teacher. In addition to the communication of basic knowledge, it is constantly more expected from teachers that they would help young people to acquire the basic skills for becoming completely independent learners, instead of just learning simple information. Use of cooperation-based and more constructive methods is increasingly demanded from teachers, and they are expected to act rather as assistants and guides of learning activities than persons sharing knowledge from authoritative position (Improving the quality..., 2007). A professional teacher is characterized by up-to-date knowledge of the subject and of teaching methods, readiness to do research. A professional teacher applies versatile teaching methods, is creative and consistent in one's teaching. Another indicator of professionalism is the willingness to be open to new information that enhances his/her knowledge and practical experience with new insights from different fields (Beishuizen et al., 2001; Arnon, Reichel, 2007).

In the field of teaching and teacher education, the focus is on teacher thinking and reflection. For a teacher, this means continuous taking of opinions and making decisions. One particular point of view is the question how teachers move in their thinking from the descriptive to the normative (Kansanen, 1993). Thereby it is important, what is the background of the teacher, and what knowledge they use for thinking and decision-making (Kansanen, 1995). Similarly, to other contemporary professions, also teachers are obliged to broaden the limits of their professional knowledge through self-analysis, research and constant systematic professional self-improvement from the beginning to the end of their career, in order to raise their level and competency.

## The role of continuing education in a teacher's professional development

Possible forms of continuing education for teachers are following (Creating Effective Teaching..., 2009):

- courses or workshops;
- conferences or seminars related to education;
- qualification programmes;
- observation visits to other schools;
- participation in (subject-related) professional network;
- participation in project work;
- observation and instruction of others;
- reading professional literature.

Although continuing education for teachers is nationally regulated and specified in the law, it is also possible to choose less-developing and small-scale training courses. Teachers are very independent to determine their objectives and methods, and nothing ensures or controls the correctness of their operation. Therefore, the personality of a teacher has major importance; they are responsible for the development of themselves and their professional skills. Their choices have decisive meaning. A teacher is responsible, if their life and pedagogical methods are good or bad, valuable or of no value, thorough or superficial.

Handicraft teachers' contentment with their professional preparation is important, because availability of knowledge makes it easier to pass necessary new ideas to the students and to create a suitable study environment (Gagne, Driscoll, 1988). Of course, on the basic level of teacher education it is not possible to acquire knowledge and skills needed for the entire career (Improving the quality..., 2007), but based on the professional preparation, a teacher can assess their knowledge and competencies, their sufficiency, and the need for self-improvement.

When planning professional development, it is important to draw summaries, to reflect one's own work – which are the current possibilities for development, which activities could be continued, which should be discharged, and to find problematic spots for further handling (Goe, Biggers, Croft, 2012). Professional self-improvement does not mean only participation in lectures and courses, but acquisition of principal learning habits. The newer knowledge is practised, the stronger these new habits will become (Fullan, 2015). Teacher should have clear understanding of the objectives of their activities, planning, necessary tools, processes, assessment and feedback (Beishuizen et al., 2001). In teacher training and real school situation people tend to concentrate mainly on practical knowledge and skills related to teaching of a subject, leaving the educational values related to teaching to the background. Knowledge and skill of a teacher do not develop only during practical work as a teacher, although such opinion is quite common among the public as well as teachers themselves. Naturally, in the development of these skills a teacher should be supported by relevant training, i.e. the skills of a teacher to obtain and handle knowledge themselves shall be in continuous development process.

For a teacher, continuing education means new knowledge and conceptions through centrally organised trainings. Well-functioning continuing education taking account of the needs of teachers is useful for teachers as well as the state. It is in the interest of the state that school teachers would be professionals of their speciality, who can adapt to changing situations and update continuously their professional skills. Participation in continuing education means also security in addition to replenishment of knowledge – participation in a system - (continuing education) enables to preserve and develop their qualification.

The survey „*High-Quality Professional Development for All Teachers*” (Archibald et al., 2011), which results were published in 2011, highlighted five points determining and specifying professional development of a teacher, including use of continuing education:

- standards and prescriptions specified by the state and the school;
- concentration on the most important – development of teaching strategies for daily work;
- possibilities to study new teaching strategies;
- cooperation with other teachers;
- feedback from work.

The quality of teachers and their activity in mutual relationship with the achievements of students is a major aspect in school, which has impact on the results of the students (Montalvo, Mansfield, Miller, 2007). Also, there is a positive relationship between continuing education of teachers and the

achievements of students. Teacher education has improved the results of the children more than e.g. minimising the size of class or increasing the number of school lessons. If teachers want to change something in students, they should first look, if there is something in themselves, which should be changed. (Improving the quality..., 2007).

In Estonia, a popular method of self-improvement is participation in continuing education, which has been studied more thoroughly in this paper. The aim of current study was to find out the habits of Estonian handicraft teachers in choosing and using courses of continuing education. Specific questions were the frequency of participation of handicraft teachers in courses of continuing education, the content of more popular courses, and possibilities to participate in continuing education.

## Methodology

The combined research design was used in the research. The main research method was quantitative review research, more specifically web-based questionnaires, as this method requires less time, and is secure and anonymous.

A questionnaire was sent on random basis to 150 Estonian handicraft teachers. The questionnaire included 25 questions, of which 24 were obligatory. The last question was voluntary and intended for provision of own opinion of the topic. The drafted questions were multiple choice questions, enabling to compare the answers.

Furthermore, structured individual interview was used for specifying the collected data, which was conducted in the same period with questionnaires. A tool used to assist the interview was the same questionnaire, where the form and sequence of questions and options were specified.

Three teachers were interviewed, who were chosen on random basis with the condition that they had to possess at least ten years of work experience in different regions of Estonia. Two of the selected teachers were working in different major cities and one in a school located in a small town.

The opinions of interviewed teachers were added into the paper as comments, proposals and recommendations. For the results and analysis of interviews, the teachers were provided a code based on the sequence of conducted interviews. Answers of the first interviewed teacher were marked with the code „T1” (Teacher 1), second „T2” and third „T3”. Teachers T1 and T2 worked in a city school, T3 in a smaller school located in a small town.

Answers were received from 53 teachers. Most respondents were 41-50 years of age (43 %), the second group included teachers with 51-60 years of age (27 %), followed by 31-40 years of age (18 %) and 20-30 years of age (10 %). Two percent of the respondents were over 60 years of age.

Most teachers had higher education in their speciality. Seventeen percent of the respondents had up to five years working experience, 11 % had worked 5-10 years, 37 % of the respondents 10-15 years, 25 % had worked as a teacher for 15-20 years, and 10 % more than 20 years. In Estonia, the staff of teacher is generally becoming older – average age of teachers is 44 years and average working experience 18 years (Uldhariduse pedagoogide kohta..., 2017).

Fifty seven percent of the respondents were working in city schools, 37 % in small towns and 6 % of the respondents in rural schools.

## Results and Discussion

**Teachers' vocational choice and professional preparation.** First, we wanted to know, what had motivated the teachers to choose this profession and speciality. As the choice of profession is influenced by internal as well as external factors, the following options were offered to the teachers for answering:

- wish to teach national culture – 2 teachers;
- wish to work with young people – 2 teachers;
- to get good salary – 1 teacher;
- traditional profession in the family – 0 answers;
- wish to teach and help young people to see the outputs of various creative activities – 15 teachers;
- wish to join work and hobby – 33 teachers.

It can be seen that the main motivator for handicraft teachers was the intention to join work and hobby (62 % of the respondents). Also, many teachers wanted to teach and help young people to see the outputs of various creative activities (29 %). Other offered options were clearly less popular.

Similarities can be seen when comparing the results of our research with the research conducted by E. Veeber (2009), which analysed the reasons for being a handicraft and home economics teacher. Also, in 2009 the main reason for being a teacher was that being a handicraft teacher means work for a pedagogue, which is also a hobby. It was also noted in the mentioned research that being a handicraft teacher means teaching and passing (sharing) knowledge and skills, being in a youthful working environment. Thus, the motivation of Estonian handicraft teachers has not changed in the course of years but has remained the same.

A major aspect indicating job satisfaction is assessment of professional preparation (of a handicraft teacher). Two thirds of the respondents considered the professional preparation sufficient, while others found that it could be better. The interviewed teacher, who had critical attitude to the preparation (T1), was asked to specify the shortages. The main problem specified by the teacher was the fact that during studies many samples had been made in various techniques, which could not be used actually in school. This provides two topics for discussion:

- a) preparation has been thorough, but the skill to use it is not sufficient;
- b) preparation methodology has not been suitable for the conduction of actual study process.

**The participation of training courses.** As the requirement for participation in continuing education is specified in the law, the teachers were asked to assess, if they consider participation in continuing education important for self-development or for showing to the management of the school. In this aspect, the teachers having participated in the research had clear opinion: all considered participation in continuing education important for their development. The interviewed teachers explained such choice as follows: they mainly wanted to study new and extracurricular techniques, to communicate with colleagues and to exchange information about problems occurring in the lessons. As for the answers, a somewhat alarming fact is the wish to study extracurricular techniques, which shows that teachers do not want to participate in continuing education for raising their professionalism, but for improving the skills needed for hobby.

On the other hand, the term “extracurricular topic” may refer to the former years-long habit of teachers related to work with the curriculum. The conception of the Estonian national curriculum for basic and upper secondary schools implemented in year 2002 differed substantially from earlier curricula. The centralized *Lehrplan*-type curriculum that concentrates on subject and content by indicating precise tasks was replaced by the student-centred curriculum that is more indicative, giving general guidelines. The same principle is continued in the new curriculum for basic schools, certified in 2011 and amended in 2014 (National curriculum for..., 2014). As 35 % of the teachers participating in the research have worked as a teacher already with the old content-based curriculum, it may be confusing and difficult to get used to the new concept. At the same time, this shows the need for curriculum-based continuing education.

Analysis showed rather high frequency of participation of teachers in continuing education courses: in recent five years, 68 % of the teachers had participated in the courses. Only one teacher noted that she had not participated in continuing education courses in recent years. When the interviewed teachers were asked to explain the frequency of participation in continuing education courses, an interesting fact was found. A repeated explanation for participation in professional training course was “cheerful company, with whom it is fun to spend time”. This shows that the community of handicraft teachers forms a solid circle supporting each other, who gather for regular communication; this could overshadow even the wish for professional self-improvement. However, communication with colleagues and exchange of experiences is a form of continuing education.

In order to find out, which is the duration of training courses preferred by the teachers, the respondents were asked to choose between two options: short-term (one-day) or longer (several modules lasting several days) courses. The respondents preferred rather one-day (64 %) than longer (36 %) training courses. The popularity of one-day courses was explained by the fact that usually these do not include home tasks, which are generally included in the programme of the courses lasting several days. Thus, short-term training courses may mean rather the wish to spend time in pleasant company and to deal with pleasant activity/hobby. Teachers found that the best trainers are practising teachers themselves,

because usually “a teacher of regular school knows, how to conduct exciting and feasible work with students with available possibilities”. A training course lasting several days means involvement of a professional trainer and possibility for in-depth handling of the topic, which was also noted by the interviewed teachers. Three options were offered to the question “What do pedagogues understand by educational training”:

- theoretical training courses (lectures);
- courses mixing theory with practice;
- training courses basing mainly on practical work.

Teachers preferred training courses, where theory was combined with practice (70 % of the respondents). The interviewed teachers (T1 and T3) explained this as follows: practical work combined with theory helps to acquire better the studied material. However, also other options were mentioned as preferences. Twenty five percent of the respondents had the opinion that educational training is training basing mainly on practical work. This option was also supported by one interviewed teacher (T2), who said that through practical work a teacher learns more new knowledge/skills than by listening to the theory. Among the respondents (6 %) there were also those, who found that theoretical training courses (lectures) were most educational. The general notion was that the more different new activities/technologies are acquired, the more educated the teacher becomes. According to P.C. Meijer, it should be characteristic to the practical knowledge of a teacher that it includes research-based/theoretical knowledge, as well as special knowledge from the practice of the teachers themselves, and comprehension, how these two are related to each other (Meijer, 2013). However, it cannot be said that this would be only the interest of handicraft teachers in self-improvement through mainly professional knowledge.

Importance of practical professional skills for the teachers is also supported by the fact that 82 % of the participants answered that their latest training course had been a professional practical course of continuing education. Twelve percent of the respondents had participated in a continuing education course of educational science, and 6 % of the respondents had participated in a training course related to career and counselling or general education.

Teachers consider continuing education necessary for themselves, but training courses are not always voluntary. Sometimes the management of the school orders a course or sends the teacher to a specific course. Therefore, it is difficult to assess in the answers described above, how much these non-speciality-related themes actually interested the teachers. When comparing preferences of teachers to their latest participated courses shown in Table 1, the correlation of reality with wishes becomes clear.

Table 1

**Training courses for teachers**

<b>Training courses</b>	<b>Preferences</b>	<b>Latest</b>
Theoretical training courses (lectures)	6 %	23 %
Courses mixing theory with practice	70 %	6 %
Courses basing on practical work	25 %	82 %

Teachers do not directly criticise educational (generally theory-based) training courses. One interviewed teacher (T1) notes that there are undoubtedly good training courses, just they have not happened to participate in such. Teacher T3 clearly prefers professional training courses: “*I have studied already enough dry theory*”. One respondent noted: “*I care more of self-education on horizontal level (from being a human to studying of any culture/object/field) than on vertical (studying specific handicraft techniques)*”.

The pedagogues having participated in the research had common opinion that participation in professional training courses helps teachers to fulfil better the curriculum. As much as 93 % of the respondents shared this opinion. One interviewed teacher (T3) specified: “*Otherwise there would not be the knowledge to teach*”. It can be concluded from here that in opinion of teachers, new knowledge/techniques are needed for the fulfilment of curriculum. However, as teachers already noted that they mainly expect extracurricular techniques from training courses, there is clear contradiction in the answers: extracurricular training does not support fulfilment of curriculum.

The wish to participate mainly in subject-related training courses has been the most popular form of self-improvement among all teachers in Estonia throughout the years (Sarv, 2008). It should be mentioned here that the opinion of pedagogues' conflicts with the professional standard of teachers (Professional Standard, 2013), pursuant to which a teacher shall develop, in addition to their professional skills, also the skills of organisation of work, development of study environment, instruction of studies, motivation of students, cooperation, communication and development of a student, analysis and assessment of study process. For some reason it is thought that professional skills/knowledge form the most important part in this list, which needs improvement.

Most continuing education courses, which first and foremost educate a teacher, who can thus raise their qualification and verify competency on the taught speciality, require payment of participation fee. Based on national programme, every year resources intended for specific purpose are assigned to schools in Estonia for continuing education of teachers. This sum is not large, and if a teacher has special interests or they want to participate in several training courses, they shall pay the participation fee themselves. The teachers were asked, if they agree to pay themselves for participation in training courses. 70 % of the teachers answered negatively to this question, while others agreed to pay themselves. As a comment, one pedagogue added that sometimes, when school does not agree to support, they finance the training course themselves. Another comment supported the same idea: *"I agree to pay for continuing education courses, if the topic is necessary for me."* One interviewed teacher (T3) noted that they do not agree to pay for the courses, as the salary of a teacher is too low. Other two interviewed teachers (T2 and T3) found that maximum sums they would agree to pay for the courses generally remain within the range 50-120 Euros.

**The other choices for self-development.** Self-improvement does not mean only participation in continuing education courses; it can be done also through other activities. The teachers were asked, which could be the primary and most important method of self-education for them.

The answers showed that the most important form of self-improvement is participation in continuing education courses (57 %), followed by work with speciality literature (23 %). The interviewed teachers were asked to specify, how often did they read speciality-related and general educational literature, and which materials specifically. All three pedagogues were mainly interested only in speciality literature, i.e. handicraft periodicals and books. They also visit various web pages.

According to M.T. Brownell successful teachers learn from each other (Brownell et al., 2006). The third major form of self-improvement noted was there consulting with colleagues (19 %). One interviewee (T1) explained that consulting with colleagues provides an opportunity to share and exchange experiences and to compare own results to others. Such approach is more general in Estonia: when problems arise, people prefer to consult each other, instead of searching answers e.g. from scientific literature (Sarv, 2008). This was also confirmed by the answers of another teacher (T3), who also considered important a possibility to visit lessons of colleagues. They found that it is very good and useful method of self-improvement, as it provides opportunities to find new ideas and to compare themselves with colleagues. However, they also said that such option is very difficult to use in real life, because in such case they should find a substitute teacher for themselves, and only few teachers are pleased to accept observers in their lessons. The mentioned teacher proposed an option: handicraft teachers could sometimes conduct organised sample lessons for each other – one teacher would teach, performing their job in traditional way, but instead of students there would be other teachers. This idea is connected to the abovementioned proposal to use practising teachers as lecturers in continuing education courses.

In the research a possibility was offered to the teachers to add comments about continuing education. The feedback was rather active. Among other things it was noted that there are generally few practical training courses, or the courses include themes, which cannot be applied in the study process. Another opinion was that the number of courses is sufficient, but intense work schedule makes participation impossible. Some added comments concerning continuing education courses included specific wish to acquire certain technologies, which again confirms the fact that teachers have very practical attitude towards continuing education courses.

## Conclusions

The profession of a teacher becomes more complicated: the requirements set to them are increasingly higher, and their work environment is setting constantly more challenges to them. The role of teachers is to be mediators between rapidly changing world and the students entering this world.

From the analysis of the results it can be concluded that handicraft teachers prefer more self-improvement with practical professional skills than acquisition of methodologies, study styles and methods for passing the knowledge. As it turns out, the handicraft teachers do participate in further leaning, but mostly in form of vocational courses, which is unbalanced. This could have two reasons:

- the handicraft teachers' profession is simultaneously their hobby and they wish to combine available courses with personal interest;
- the average age of the teachers is relatively high, and the teachers are used to participate in practical vocational courses.

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## Physical Activity and Life Quality of Part-Time Students

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**Abstract:** Physical activities are important for everyone in order to keep the physical preparedness and support an adequate level of life quality. Physical activities of young people – students are basis for keeping health capacity, working ability, developing business and carrier, and providing economic and social stability. Sport activities are very popular nowadays. Anyone can choose various sport activities that are suitable and available, that favour physical fitness and increase health status. Physical activities usually are planned during leisure time and weekends. We have provided a questionnaire about physical activities of student groups in period from 2012 till 2016. Studies have indicated the number of smokers, assessed results of questionnaire about physical activity, the body mass, body heights, and anthropometric indices. Results reflected that general physical activity level (in scores) in examined groups – part time students – were low for female and moderate for male. Recent research suggests that a significant percentage of students didn't get adequate physical activity. We fixed increased numbers of individuals of both genders who have no any sports activity in the last years. The mean value of body mass index (BMI) for male was above standard. The amount of physical activity of working people has dropped and the resulting poor physical condition is becoming a threat to their working ability, health and well-being. Contemporary life style is connected to full time job that reduces the time dedicated to physical activities. The consequences of physical inactivity are associated to multiple health related problems. Musculoskeletal pathology is one of the most common work-related health problem, as well as an important cause of morbidity for population. It is an inflammatory and degenerative ailment that affects all individuals in working age. The aim of the study is to determine and evaluate the daily physical activities and their general level for the part-time students, give characteristic of anthropometric parameters for part time students.

**Keywords:** physical activity of students, body mass index value, health and fitness of students, adult education.

### Introduction

The level of welfare increases in the European countries as well as in Latvia (Sunite, Kasalis, 2012). The actual problem of modern society is lack of motion (Porozovs, 2010; McLaughlin, Wittert, 2009; Research for universal..., 2013). There is aggravated statistic concerning the level of morbidity and mortality that connect to the decreasing physical activity (Aandstad et al., 2014; Caspersen, Powell, Christtenson, 1985; Dishman, Flemmunic, Kjaer, 2007). Daily physical activity and physical activity is closely associated with physical fitness that characterizes an individual's cardio respiratory status, muscular strength and endurance, as well as velocity and coordination (Heir, Eide, 1996; Kalichman, Kobykiansky, 2005; Nascimento et al., 2008). The individual physical activity level determines the quality of performance of daily duties (Grinberga et al., 2014; Heir, Eide, 1996; Kalichman, Kobykiansky, 2005). Individual physical preparedness is a base for performing duties in the working place and professional carrier successfully. Physical activities are important for everybody to keep physical preparedness and fitness. Everyday's activities of students are connected to physical activities that demand physical preparedness. Physical activities are popular and planned during leisure time as well the weekend (Grinberga et al., 2014; Heir, Eide, 1996; Kalichman, Kobykiansky, 2005). Physical activity, which is closely associated with physical fitness, is an indispensable part of daily routine of everyone. Physical fitness characterizes an individual's cardio respiratory status, muscular strength and endurance, as well as velocity and coordination. It comprises characteristic morphological and functional properties, which ensure that individual is able to do a physical activity. The individual fitness level determines the quality of performance of daily duties. Contemporary life style is connected to full time job that reduces the time for physical activities. The consequences of physical inactivity are associated to multiple health related problems (Grinberga et al., 2014; Kaarma et al., 2007; Latvijas iedzivotaju sportosanas..., 2007).

The aim of the study is to determine the general physical activity level for the part-time students in the Riga Teacher training and education management Academy, as well as to assess their anthropometric characteristics (body mass, height, Body Mass Index).

## Methodology

Cross-sectional study, carried out from 2012 till 2016, when 108 respondents of both gender in age from 21 till 52 were examined. Participants of the study filled in a structured questionnaire (Vilenskij, Ilinskij, 1987), which included data about individual and organized physical activities on working days, and on weekend, morning exercises, and sports activities for individuals as well as sports activities in groups. Questionnaire responses rendered whether the respondents to work and back go on foot (of moderate intensity load, not less than 20 minutes), go by bicycle (of low or moderate intensity load, if the distance is at least 10 km), or use the public transport. Information about eating habits and length of sleep, the days missed from service due to illness, as well as an individual's self-assessment of health was gathered. Respondents also filled in an anonymous questionnaire on smoking and alcohol use. Each answer was allocated a certain number of scores that allow to classified physical activity level of respondents (low, moderate, good and high). As a result of the data statistical analysis and processing, the total level of the respondents' physical activities determined in each years of study group was analysed. Respondents were included into the groups with low, moderate, good, and high physical activity level.

## Results and Discussion

Assessment of daily physical activity patterns for respondents of examined groups included various daily performed physical activities. Assessment of physical activity level, which is characterized by the exercises or daily physical work, allowed grouping respondents into the categories with low, moderate, good, and high physical activity level. Evaluation of the data reveals that the respondents of female group have lower level of physical activity, than respondents of male groups (Figure1). The general level of physical activity in scores for male was from 38 % till 45 % higher than for female in the examined period 2012– 2016. The main benefits of physical activity are prevention of diseases, stress management, and improved body building. Recent research suggests that a significant percentage of students do not get an adequate physical activity. Physical activity in the group of female respondents corresponded to the low level from  $23.3 \pm 2.8$  (2012) till  $25.5 \pm 4.9$  (2016) but physical activity level in the male respondents group is moderate from  $32.2 \pm 5.1$  (2012) till  $37.2 \pm 6.1$  (2016).

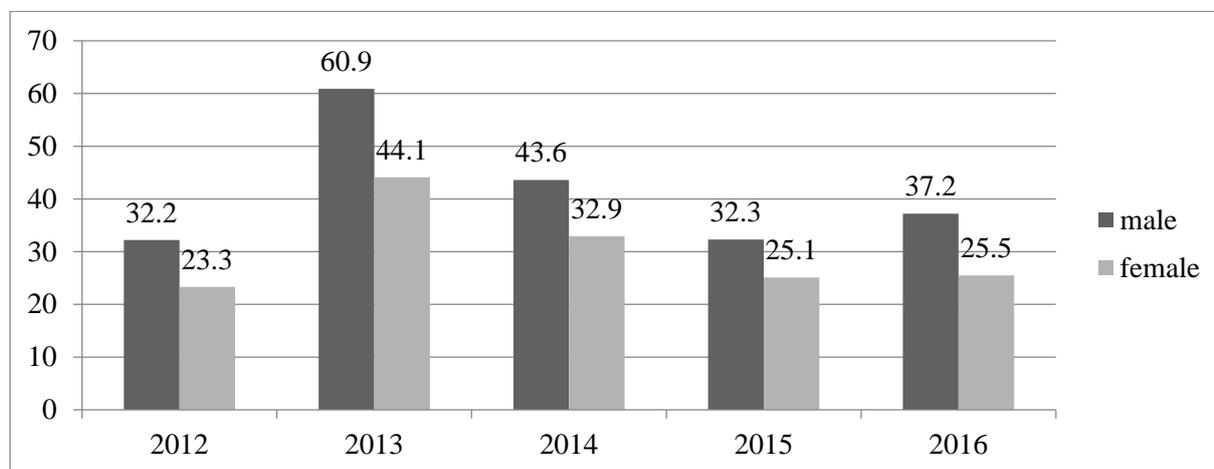


Figure 1. Mean value of physical activity level (in points) for respondents of both genders in examined groups in period 2012-2016.

Levels of physical activity were different for participants in the examined groups. Analysis of general physical activity levels in the female groups reflected that the numbers of respondents with low level physical activity fluctuated from 30 % in 2013 till 83.3 % in 2012, but in the 2016 number of female respondents with low level physical activity composed 55.5 % (Figure 2). About one fourth of all female respondents of examined groups have moderate level of physical activity from 16.6 % in 2012 till 30 % in 2014, but in 2016 they composed 27.8 %. The number of female respondents with good and high physical activity level decreased in the last five years from 50 % in 2013 till 11 % in 2016. Analysis of physical activity level in the male – respondents groups shows that good and high level of physical activity were fixed for more than half of respondents in each examined group (Figure 3). The moderate level of physical activity varied from 33.3% in 2013 till 57.3 % in 2014 and composed 40 % in 2016.

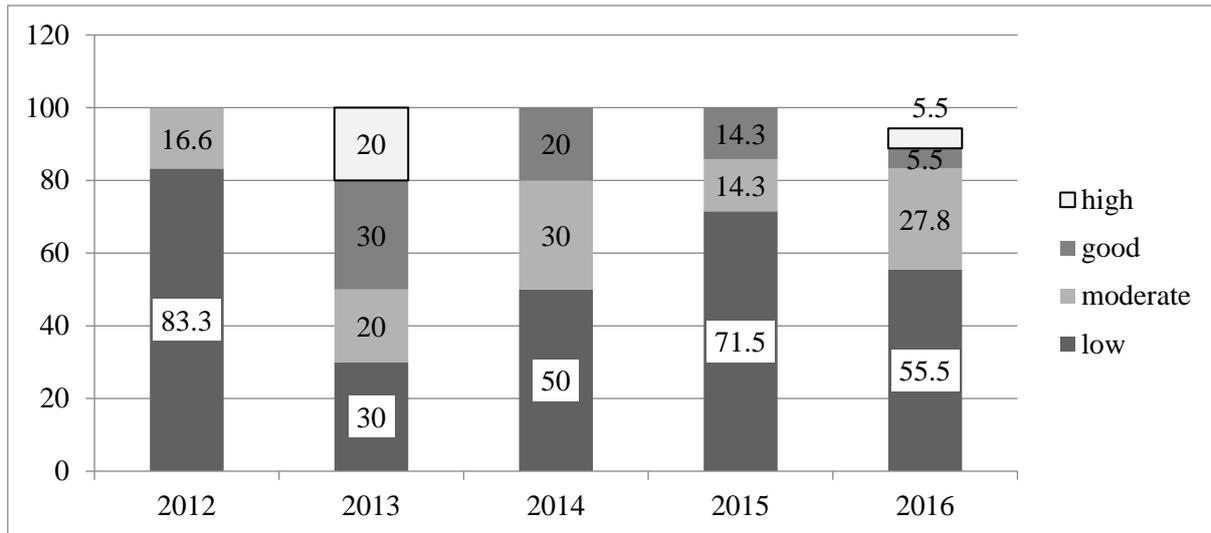


Figure 2. Analysis of physical activity levels (in points) for female in examined groups in period 2012-2016.

Male respondents with low physical activity levels in the last years have slowly grown up from 14.3 % in 2014 till 40 % in 2016. But the number of male with good physical activity level gradually decreased from 44.4 % in 2013 till 13.3 % in 2016. The numbers of male respondents with moderate physical activity level fluctuated from 33.3 % till 57.1 %.

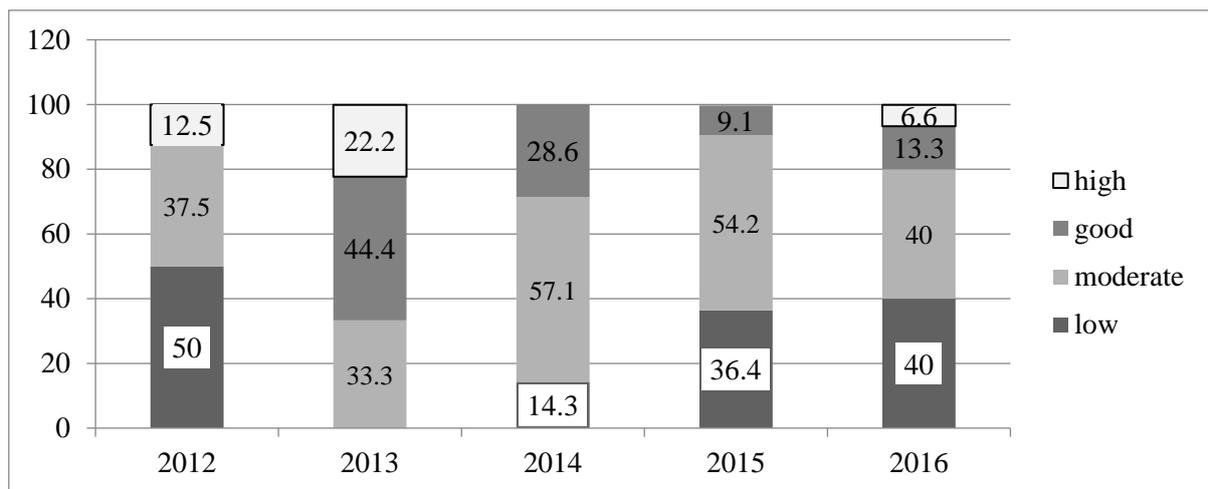


Figure 3. Analysis of physical activity levels (in points) for male in examined groups in period 2012-2016.

Assessment of students' (female) individual and organized sports activities with moderate and high intensity with duration for at least two hours, both outside daily working hours and at weekends, were shown (Figure 4). Number of participants- female in regular sports activities diminished from 40 % in 2014 till 11.1 % in 2016. The numbers of female respondents who didn't follow any kind of sports activities were from 16.7 % till 28.6 %. However about 40 % - 72.2 % female respondents followed non-regular sports activities that is twice more (1.8 times) than males.

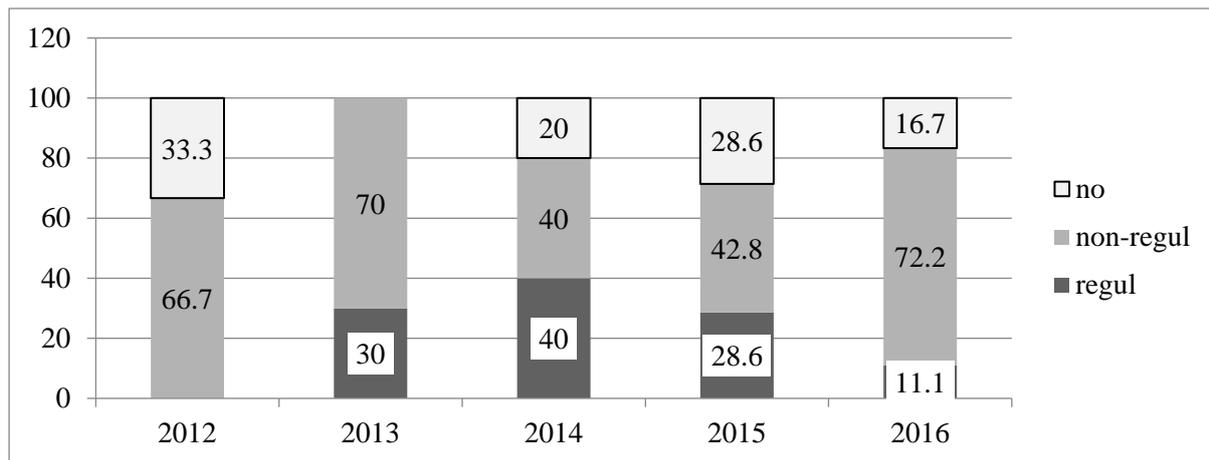


Figure 4. Distribution of female – participants in sports activities during leisure time in examined groups in period 2012-2016.

Situation concerning sports activities during leisure time in male groups is more positive and optimistic (Figure 5). Number of male –respondents who participate in sports activities during leisure time fluctuated from 18.2 % till 55.5 %, but in 2016 they composed 33.3 %. Numbers of male respondents who had non-regular physical activities were from 37.5 % till 72.7 % in different examined groups (Figure 5). Non-regular sports activities were fixed for 40.0 % for male respondents in 2016. In the examined groups we fixed increasing numbers of individuals (male) who have no sports activity: in the last years from 0 (in 2014) till 26.7 % (in 2016). Numbers of male respondents who have regular physical activities diminished three times form 55.5 % (in 2013) till 33.3 % (in 2016).

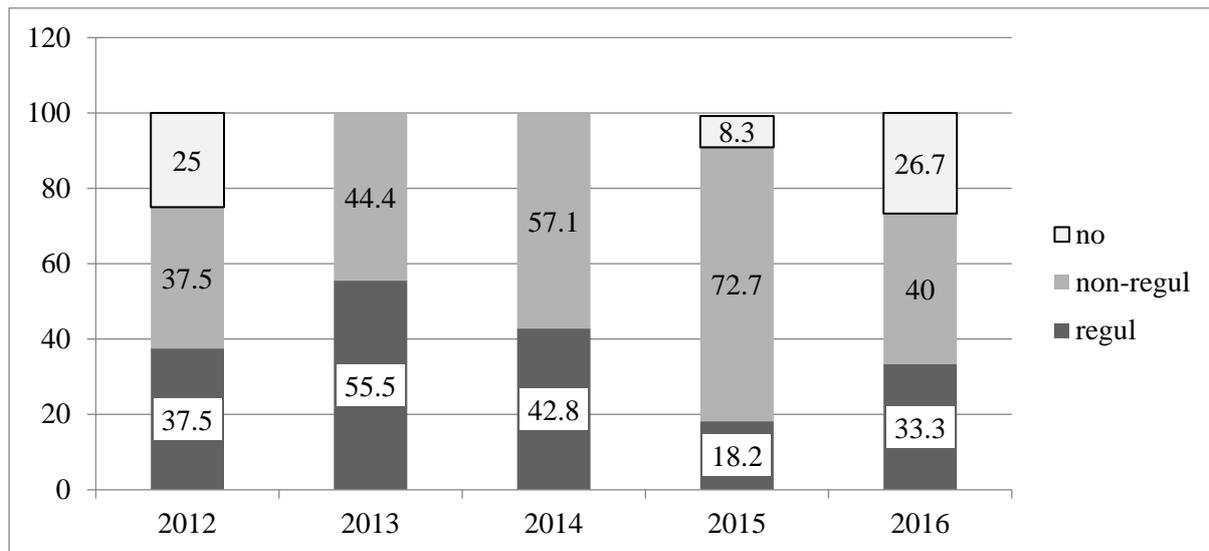


Figure 5. Distribution of male – participants in sports activities during leisure time in examined groups in period 2012-2016.

The 53.3 % of males and 61.3 % of females have regular meals and healthy sleeping arrangement. Analysis of anthropometric characteristics of respondents revealed overweight and adiposity problem. Evaluation of BMI value shows that in the male respondents group the value of body mass index in the standard interval fluctuated from 7.1 % till 36.4 % (Figure 6), however the number of female respondents with value of BMI in the standard interval dominated and composed from 58.3 % till 100 % (Figure 7). In the last years adiposity problems were fixed for 16.7% male – respondents in 2015 and 28.5 % in 2016. In the female respondent group, we have found overweight problem for 28.6 % in 2016.

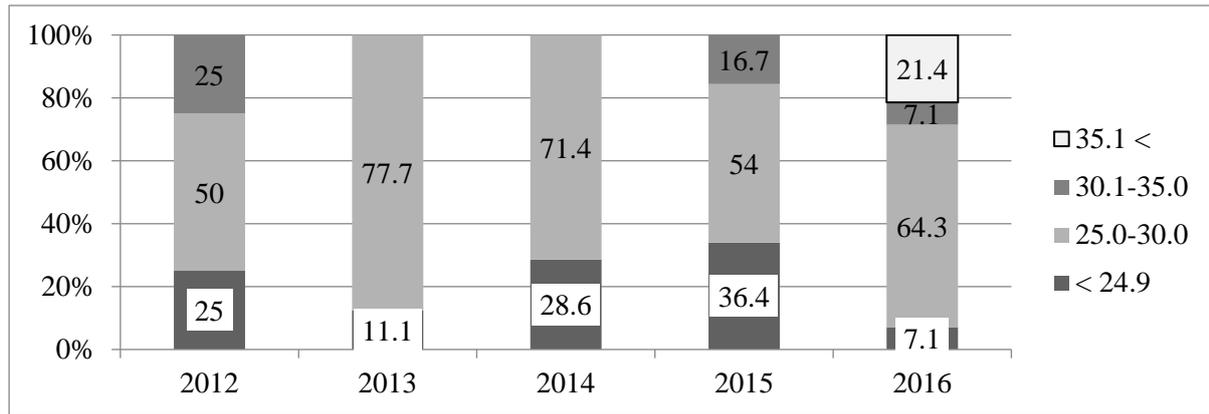


Figure 6. Distribution of male according to the value of BMI groups in period 2012-2016.

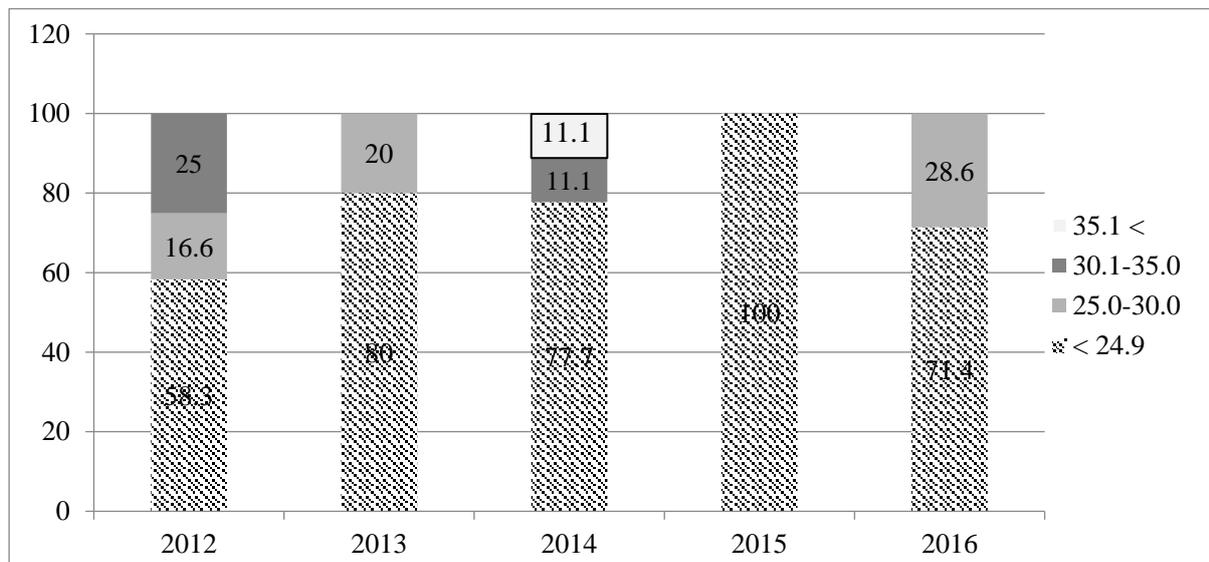


Figure 7. Distribution of female according to the value of BMI groups in period 2012-2016.

We have evaluated mean value of BMI of respondents of both genders in examined groups (Figure 8). The male groups had value of BMI higher than the mean value of BMI in female groups.

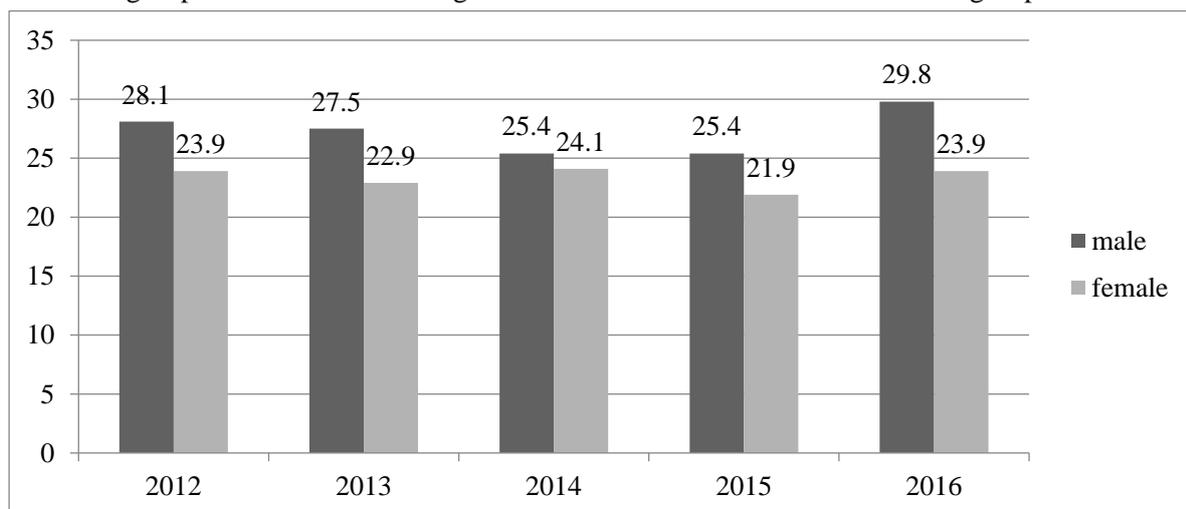


Figure 8. Distribution of mean value of BMI form respondents of both genders in period 2012-2016.

## Conclusions

- General physical activity level (in scores) in examined groups of students was low for female from 23.3 (in 2012) till 37.2 ±6.1 (in 2016).
- Respondents of examined groups were busy, they involved in daily activities connected to direct job duties as well studies. Recent research suggests that a significant percentage of students didn't get adequate physical activity. Numbers of male respondents who had non-regular physical activities varied from 37.5 % till 72,7 %. We fixed increasing numbers of individuals (male) who have no sports activity in the last years from 0 (in 2014) till 26.7 % (in 2016). Regular physical activities are important for 30% of female respondents in 2013 till 16.6 % in 2016.
- The mean value of BMI for male was above standard and corresponded to the overweight characteristics; they fluctuated from 28.1±0.9 (in 2012) till 29.8± 1.4 (in 2016). The number of male respondents with adiposity problem (according to WHO standards) increased in the last years. The mean value of body mass index for female corresponded to the WHO standards and changed from 23.9 ± 0.7 (in 2012.) till 23.9± 0.9 (in 2016).

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## Carers' Reflections about a Fulfilling Work Environment in a British Residential Home

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**Abstract:** When do people feel happy? One of the answers is that it is then when they feel fulfilled: happy at home, with a good job, and enjoying their everyday activities. When talking about their working day, if a person says that it was good, that colleagues were positive, and the staff working as a team, that answers to all the questions that arose were found and that problems were resolved, this probably means that this person is working in a positive or, in other words, a fulfilling environment. Is such a scenario possible in care settings, specifically, in a British residential home, where the work environment is unpredictable every day? Some answers can be found by analysing the reflections of the staff-carers who spend their long working days trying to make their clients who are diagnosed with dementia happy and fulfilled. So, the aim of this study is to reveal the carers' opinions of what constitutes a fulfilling work environment in a British residential home. For this reason, the answers given by ten carers working in a British residential home provides a better understanding of these carers' opinion of the work environment. The results of the qualitative research are presented, highlighting the research participants' reflections on their choice to work in a residential home, the meaning of a fulfilling work environment in a care context and ways to make the environment more fulfilling in a residential home. The survey reveals that significant motivating factors and the reasons that carers choose to work in a residential home are connected to the people that carers are working with. The process of learning and trying to improve oneself in the work environment and seeking to help clients is important as well. One of the interesting findings in this survey is that the respondents, while explaining their compassion for clients, mention their own family members, who inspire them to care about their clients. It can be said that this fulfilling work environment in some ways reminds them of a safe home environment. For this reason, one of the ways to make the environment more fulfilling in a residential home is to make the residents feel that they *live in an environment that is more home-like and less institutional*, to create a safe environment for the clients that would remind them of a real home. In this case more staff is required to do a better job. It is also important to mention that carers themselves could create a more positive and fulfilled work environment if they are not too tired and if they receive support and encouragement.

**Keywords:** adult education, fulfilled environment, work environment, residential home.

### Introduction

There are currently eight hundred thousand people with dementia in the UK; there will be over a million people with dementia by 2021 (Coope, Richards, 2014). These statistics are not encouraging, as they show that the number of elderly people diagnosed with dementia are going up. This also means that more people are receiving residential care. Families who have a member that receives care want the best environment possible for their loved ones.

Statistical data show that "eighty percent of people living in care homes have a form of dementia or severe memory problems" (Coope, Richards, 2014, p. 2). For this reason, it is important to encourage the creation of a fulfilling work environment in care which will promote the best possible care outcome for both the clients and staff/carers.

In this way, the question arises of how to make the work environment in a residential home fulfilling, for both clients/residents and carers. Specialists often discuss what a fulfilling, positive work environment really is. The main characteristics of a positive work environment are the following: transparent and open communication; a work-life balance; training and a focus on development; recognition for hard work; and strong team spirit. When considering how to create fulfilling work environments, three main ways are mentioned. According to K.E. Phillips (2015), it is important "to develop a positive culture; provide employees the resources they need to succeed; promote growth and development". Phillips goes on to declare: "Though fulfilling work environments incorporate various components and can mean many things to many people, they always create the opportunity for employees to be successful. They generate positive energy, foster inspiration, and provide a quality setting in which employees can deliver superior value" (Phillips, 2015).

A variety of different challenges appear when trying to create fulfilling environments for those working as carers in residential homes. One of these is to be ready to work in a stressful environment; trying to make it a more relaxing place is a major task for the staff, including the carers, who are working there. This is why it is important to find out the carers' opinions about their work environment and how they cope with the challenges in their everyday life as they work with different people.

Research object – the carer's reflections about a fulfilling work environment. The aim of this research is to reveal the carers' opinions of what constitutes a fulfilling work environment in a British Residential Home. Research tasks:

1. To identify the reasons why carers choose to work in a residential home.
2. To explain the meaning of a fulfilling work environment in a care context.
3. To highlight ways to make the environment more fulfilling in a residential home.

## Methodology

The empirical research is based on ideas about people who are diagnosed with dementia and findings about how to live and work with people with dementia, creating a relaxing environment (Andrews, 2015; Andrews, House, 2009; Atkins, 2013, 2015; Bailey, 2015; Eckersley, 2011).

Ten carers from a British residential home participated in the research (8 women and 2 men), which took place in a residential home in the UK November 1 – 20, 2017. The participants were 24-70 years of age. A research restriction was that the majority of the participants were female (8 females and 2 males). All the participants were fulltime carers and participated in the learning process in their work environment.

The participants in the research were given 5 open-ended questions; all of them received their interview questions in written form. These 10 carers had to answer questions about their motivation to do this job and their care of clients. In addition, the participants were asked to give some practical suggestions to improve the environment for the clients. They were also asked about their decision to take courses in the working place. Finally, the carers were asked to name strong and weak features of the course they were taking.

The collected data was analysed using content analysis. The research results were presented in the context of a concrete practice (Bitinas, Rupsiene, Zydziunaite, 2008). The research results were presented as a text highlighting the research participants' ideas about their choice to work in a residential home, the meaning of a fulfilling work environment in a care context, and ways to make the environment more fulfilling in a residential home.

## Results and Discussion

### Carers' thoughts about their choice to work in a residential home

In explaining about the choice to work in a care home, one respondent emphasized:

*I like working in a care home because I like helping people who have dementia, to have a slightly better life during their autumn years. You tend to meet nicer people in general. Also, it is nice feeling to help the vulnerable people during their autumn years and, to be honest, some of clients make me smile and laugh [C6].*

Another of the respondents answered in a similar way:

*I like to make a difference in their lives. The elderly are vulnerable people. If I can make their lives happy and fulfilled, easier, then I have done a good job [C3].*

One respondent added that it is important to see the residents fulfilling their lives as best they can [C7]. Still others emphasized similar points.

*As I am a people person, I enjoy getting to know clients and the families. I get a lot of job satisfaction and enjoy interacting with the clients [C8].*

*I like to offer assistance to others that need me. I like working in a care home because I enjoy the feeling I get when I know I have been able to make someone happy. My motivation mostly is the "thank you", "smile" reward I receive for what I do [C9].*

*I like to help a lot and share my life with people; that is why I like working in a care home. I always felt that it is important both for me and the clients to deliver a good job and this drive me always do my best [C10].*

For some respondents, an additional motivation is the salary they receive.

*My motivation is money. I mean I have bills to pay after all [C6]. It is important: to earn money and support family [C2].*

But most of the respondents agree that

*working in a care home gives me more time for myself and I am really enjoying; makes me to feel that I'm helpful for elderly people and I also enjoy what I am doing. Always try to improve my skills and services, trying to learn from my other co-workers who are/is the best [C1].*

In this way, the survey reveals that important motivating factors are the people that (colleagues/co-workers/staff) carers are working with. The process of learning and trying to improve never stops. As one participant stated, it is important *to keep up my/our knowledge of care [C4].*

### **Meaning of a fulfilling work environment in a care context**

One of the interesting findings from this survey is that the respondents, while explaining their compassion for clients, also mentioned their own family members, who inspire them to care about their clients.

*...I miss my grandparents and family and I wish to look after them, but because I can't, I am happy to look after them like they are a part of my family... [C1]. They are like an extension of my family, I care for them as if they were a relative [C7]. I see them as I would see my own family members in similar situations and also makes me think about my own future [C9].*

Mutual trust becomes a very important element, because the staff care about the clients, because they *get to know each resident individually as people and have a big part in their lives [C5].*

The participants in the survey mentioned that they want to create a safe environment for their clients that could remind them of a real home, *because they are vulnerable, they want to feel safe, to feel they are cared in safe environment. If we can make them feel like that, then they will be happy and contented and I have done my job [C3].*

Carers stress that this is not only the part of their job, but as well their own feelings, because they *get to know each resident individually as people and have a big part in their lives [C5].* This is considered the right approach, arising from a personal desire to care about people. As one of the participants said: *the people I look after... someone has got to care. It is right thing to do, it is justice and they cannot help the way that they are [C6]* so that it is important to care about residents, *making them smile and laugh and making their life easy for them... [C2].*

One participant stated that we will all grow old and it is lovely when clients acknowledge you are doing your best to make their lives more enjoyable [C8].

Another respondent acknowledged that this is the stage where they need love ones around them, but, due to various reasons it is impossible. This is where I want to be a friend and be there for them [C10].

### **Improvements in the environment of residential care**

Different ways to improve the environment for the clients while fulfilling their lives were highlighted. One of these is the significance of the number of staff members.

Often carers mentioned the need to have more staff members working in the suites. One of the respondents emphasized that it is important to have *more staff as if we are short staffed it leads to a stressful work environment [C5].*

Other respondents agreed that it is necessary *to have enough staff to give personal time to the residents. Quite often staff are so busy that we can't spend a little time to chat with the residents [C7].*

*If carers had a little more time they could give clients more one on one interaction [C8].*

*I would suggest more carers to have enough time to sit and chat with the residents. Caring it is not only ... personal care giving but also keeping them company [C9].*

One more way of improving the environment is to arrange things better in the home environment.

The respondents expressed the need *to make the place they (residents) live homelier and less of institutional environment [C3]*. For example, one suggestion was *on the bigger units' light outside in the garden, for them to see things, when they want to go outside at night [C2]*.

*I would try to make the environment homelier, sometimes things can become more "clinical", this is good for a hospital environment, not for a place that is supposed to be home, more flowers, proper sofas and chairs, more homely cosiness... smell of bread [C6]*.

As well, according to the respondents, providing different activities is important for the clients. The respondents highlighted the need for

*a variety of activities for them to keep their brains active and feel them happy in their environment [C5]*.

One participant in the research suggested monthly outings [C4].

*More trips to their favourite places like salons, restaurants, parks, and cinema. [C10]*.

One of the respondents was *pleased with what we have at work place, perhaps a small chapel where they (residents) can attend religious services would be nice [C1]*.

### **Learning in the working place**

When answering the question about the carers' decision to study in their working place, the participants in this survey emphasized the importance of job training in the context of lifelong learning. The importance of looking "at things from all angles" [C6] was referred to.

For example, one of the participants started a NVQ (National vocational qualification) course because it helps develop better care for residents mainly and more accurately, ... to get a better perspective, to look at things from all angles [C6].

The participants in the research agreed that "you can never stop learning" [C3...]

*Courses are good and as you can never stop learning. The more knowledge you gain the better you are able to do your job in the workplace and in general life [C3]*.

The components of this process are knowledge, skills, and values [C3, C4, C5].

These components can be found in the literature as well and are described as follows: knowledge is the foundation of the whole course; skills "develop and enhance during the course"; while values are related to the course content. Such values include "independence of thought, depth and breadth of understanding, love of learning" (Learn more, do more. Knowledge, Skills and Values). It is important to use knowledge in practice, to develop planning and organising skills, to use personal features, to develop and improve communication and cooperation, independent learning and solving learning related problems (Staniuleviciene, 2014).

Getting involved in the studying process helps carers to improve their knowledge in theory and in practice, as well as encouraging them to seek better support for their clients. Theoretical and practical knowledge and values foster positive thinking and attitudes that provide support. Then carers can be more creative and help their clients overcome difficulties in everyday tasks. The carers are ready to accept new knowledge and, in this way, participate in lifelong learning.

According to this research, developing a fulfilling work environment is complex; the carers' reflections about it shown in Figure 1.

**Work – life balance:** carers need to balance between their job and their personal life. In effect, carers cannot be overloaded with tasks and there must be enough staff to do high quality work. Support with resources: in order to carry out their job efficiently and effectively, carers must have appropriate resources (physical and human).

**Personal development and learning:** carers can develop personally through their studies with on the job training and e-learning. Cooperation with clients: encouraging and cooperative relations with clients always create a positive work environment.

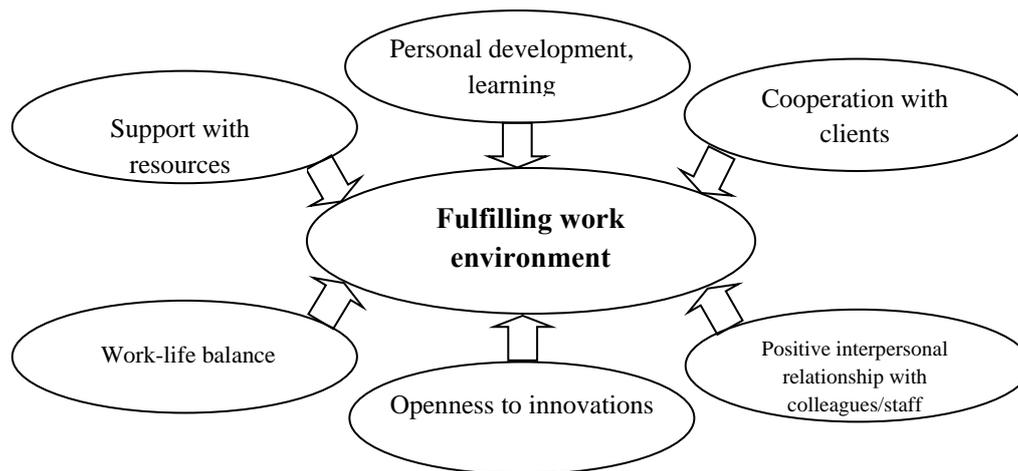


Figure 1. Fulfilling work environment in a care context (by the author).

Positive interpersonal relationship with colleagues/ staff: a positive relationship with colleagues and other staff makes it easier to carry out tasks and helps the staff to work as a team. Openness to innovations: this helps carers to renew their knowledge related to the job and encourages daily progress.

## Conclusions

The survey reveals that, among motivating factors and reasons that carers choose to work in a residential home, the people that carers are working with are particularly important. The process of learning, trying to improve in the work environment, and seeking to help clients are important as well.

One interesting finding in this survey is that the respondents, while explaining their compassion for clients, mentioned their own family members, who inspire them to care about their clients. Carers bring a positive culture from their home environment to the work environment. In some ways a fulfilling work environment is reminiscent of a safe home environment. This is why one of the ways to make the environment more fulfilling in a residential home is to make residents feel that they live in an environment that is more like a home and less like an institution, to create a safe environment for the clients that could remind them of a real home. A fulfilling work environment for carers in a care context means an environment which is in the best interests of the residents.

Therefore, a fulfilling work environment in a care context is a complex of various components: the work – life balance; support with resources; personal development and learning; cooperation with clients; a positive interpersonal relationship with colleagues/ staff; and an openness to innovations. This research has also revealed that more staff need to do a better job in residential homes. It is important to mention that carers themselves could create a more positive and fulfilled work environment if they have support and encouragement.

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## Information and Communication Technology-Based Career Guidance Model for Young People

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**Abstract:** Information and communication technologies (ICT) used in career guidance have fast become both a necessity and an opportunity for new professional challenges playing an increasing role. The use of ICT is an integral component of the daily life of youth, and it is useful for them to professionally apply the ICT in their career guidance. The aim of the research is to develop an ICT-based Career Guidance Model and perform an expert evaluation of it. The aim of the Model is to contribute to the purposeful, conscious, responsible and persistent choice of careers by the youth. According to the theoretical aspects analysed in the present research, the best approach is to integrate ICT as an inclusive model, in which the ICT are used in parallel with other guidance activities. Three experts – professionals in pedagogy and career counselling – were involved in the expert evaluation. The expert evaluation of the model allowed finding that career counsellors, using ICT in their counselling, have to plan carefully their career guidance and combine the educational content, theory and technology. The expert evaluation allowed concluding that the model would contribute to the purposeful, conscious and independent choice of careers by youth if career counsellors confidently use adequate digital technologies in their career guidance for the youth.

**Keywords:** career guidance model, information and communication technologies, school education.

### Introduction

Nowadays the youth attending schools, colleges and universities are called differently: the new generation, the google generation, the digital generation, the millennial generation. All the terms are used to stress the role of new technologies in the life of young people (Helsper, Eynon, 2009). There are very great opportunities to access information and communication technologies (ICT) in the 21<sup>st</sup> century, and the modern technologies pervade almost every aspect of our life. The Internet is accessed not only via computers but also smartphones and other mobile devices (Kettunen, Sampson, Vuorinen, 2015).

The new technologies caused changes in various areas of human life, including career counselling. ICT used in career guidance have fast become both a necessity and an opportunity, and professional competence in this new environment plays an increasing role. ICT offer a lot of opportunities and cause many potential threats. An opportunity ICT provides is that it is a great resource that can enhance the quality of and access to career guidance activities for those who need it. A threat is that the human factor, which is very important in career guidance, could be lost if excessively using digital technologies. Clients (young individuals in particular) who are used to exploit computer technologies in their daily life in various areas of their life increasingly expect career counsellors to use ICT.

The relevance of the research was also determined by the Guidelines for Education Development in Latvia for 2014-2020 that prescribe that the career education system has to meet the requirements of the 21<sup>st</sup> century – “the quality of career guidance as well as vocational and interest-related education for youth has to be enhanced through providing a modern and adequate teaching environment, including the ICT...” (Izglitības attīstības pamatnostādnes..., 2013).

In recent years, the use of ICT in career guidance activities has fast come into existence, which makes the sector of providers of career guidance services be aware of the need to enhance their understanding of use of technologies and modernise their services produced (Kettunen, Sampson, Vuorinen, 2015). It is important for school pupils to develop digital competence (skills related to the ability to gather and process information and use it in an organized way) and the ability to handle technological tools and scientific data (Racene, 2017). A number of researchers have stressed that it is important for career specialists to be competent and confident in the application of existing and new technologies in order to decide whether the technological opportunities are useful to their clients (Bimrose, Hughes, Barnes, 2011).

The aim of the research is to develop an ICT-based Career Guidance Model and perform an expert evaluation of it. The Model is for youth to contribute to the purposeful, conscious, responsible and persistent choice of careers by the youth.

## **Methodology**

The present research was carried out at Latvia University of Life Sciences and Technologies, Institute of Education and Home Economics, within the master study programme Career Counsellor. General education secondary schools in Jurmala city, school years 8-12, were chosen to test the model in practice.

The research object is the use of ICT in career guidance at schools. The research question – what kind of model is required to implement career guidance at schools? The specific research tasks were set as follows: 1) to review the scientific literature on career development theories applicable to youth and the possibilities provided by and the role of ICT in communication among the youth; 2) to develop a model for the use of ICT in career guidance at schools; 3) to perform an expert evaluation of the model. Three experts were involved in the expert evaluation. The findings available in the scientific literature were analysed for use at modern schools implementing career guidance activities, given the modern era requirements and their adequacy to the target audience, i.e. the youth.

Research methods: scientific literature review and Friedman's test for data mathematical and statistical processing by using the SPSS (Statistical Package for the Social Sciences) program. Friedman's test is a nonparametric test that compares several paired groups.

## **Results and Discussion**

### **Description of career development theories applicable to youth**

Career choice models emerged in the middle of the 20<sup>th</sup> century, and these theories are used nowadays as well. However, the globalised economy of the 21<sup>st</sup> century raises questions about careers, particularly in relation to how individuals can cope with changes in their careers without losing themselves and their social identity (Savickas, 2012). As the form of careers changes from stationary to mobile, it is required to preserve the most appropriate career concepts and research studies based on the career models of the 20<sup>th</sup> century in order to use them in the 21<sup>st</sup> century as well. Nowadays a lot of things are demanded from youth, even though they have insignificant life experience. As soon as their stormy period of change during adolescence ends, they have to choose their future life path.

D. E. Super (1990), the founder of the Trait and Factor Theory, viewed the lifetime from three perspectives: the past – from where an individual came; the presence, in which the individual lives; and the future, towards which the individual moves. He continued developing his ideas for more than 50 years, making considerable progress with his spectrum of life stages that stressed the relevance of various life roles of individuals at certain ages. His spectrum of life stages reflected the different roles individuals played at various their ages and an understanding of the life space (Gikopoulou, 2008). D. E. Super has also stressed that transition from one career stage to another depends on the individual's personality and life conditions rather than the chronological age. The scientist has found that satisfaction with one's career and life depend on whether an individual finds an adequate framework for his/her abilities, needs, values, interests, personal traits and self-assessment. The term career guidance has emerged with regard to the individual's self-understanding and career choice ideas, which is defined as a process that helps the individual develop and accept an adequate assessment of his/herself and his/her role in the world of careers and test this process in reality in relation to his/her satisfaction with his/herself and the benefit for the society (Super, 1990).

K. Roberts (2000) believed that the effective choice of a career involves: the problem of the individual's adaptability and focusing career services on the individual's real problems and on positive information about the individual and his/her future behaviour (Gikopoulou, 2008).

Career guidance is vital to young individuals. However, it has to be taken into consideration that at the adolescent age it is important not only to help young individuals make decisions today but, what is much more important, help them build up their knowledge, skills and attitudes, which will assist them in making the right choice of a career throughout their lifetime (Patton, 2005).

Even though system elements and adolescent age real problems are the same as earlier, the very nature of the process has changed. Unlike today, as pointed out by W. Patton and M. McMahon, in the previous century the world of careers offered one area of jobs or even a job for the entire life (Patton, McMahon, 2006; 2014). Nowadays individuals change their careers many times throughout their life, and the choice of a career is only one of the areas where guidance by a career counsellor is required. Career development theories refer to the constructivist approach in the aspect of this change. The Trait and Factor Theory as well as career development theories are integrated into the constructivist approach from the modern perspective, thereby helping young individuals cope with 21<sup>st</sup> century challenges. M. Savickas attributes the influence of constructionism to the change in the structure of work and to the requirement for individuals to become agents in their lives and careers (Savickas, 2012). Constructivists assert that individuals actively construct their reality and are also able to actively construct a meaningful position in the context of work (Patton, 2005). In career guidance, the constructivist approach means active participation of career guidance recipients and formation of their own reality.

The role of a career counsellor has also changed, which earlier was that of an expert who helps someone solve problems, explain the problems through analysis or give advice. Scientist V. Peavy suggest employing the constructivist approach in career education, which means opening the way for movement, contributing to full participation, supporting change and giving individuals the right to actively take part in their desired future (Peavy, 1997).

A number of authors developed guidelines for integrating constructivism in career education (Brown, 1998, Doolittle, Camp 1999). If applying constructivism in career education rather than only in career counselling, the most essential difference lies in the form of learning, teaching and assessment (Patton, 2005).

According to constructivism, interaction between a student and a specialist as well as interaction among students are equally important (Shackelford, Maxwell, 2012). Constructivism and computer technologies – separately and often even jointly – have considerably affected the concept regarding learning challenges and created new learning opportunities for almost any teaching and learning situation, including traditional teaching in a class. One more essential effect of constructivism apparent in a technology-based learning environment is the fact that learning could be both a private and a social activity. Technologies provide an opportunity for more diverse and socially richer teaching contexts (Tamm, 2000).

The authors of the present research based the development of their ICT-based Career Development Guidance Model on the findings made by the above-mentioned authors: D. E. Super, K. Roberts, W. Patton, M. McMahon, M. Savickas, J. L. Shackelford and M. Maxwell. The content of career guidance and the methods used in the model were based on problem-focused individual and group learning, encouraging active participation, self-cognition and experience exchange. In developing the educational content for the model, the authors employed the concept highlighted by the above-mentioned theories, including the elements of the Trait and Factor Theory and constructionism.

### **Use of information and communication technologies in career guidance activities**

Technologies could be simply added to the career area as one of the resources: they cause the need for strategic planning at every turn (Palomba, 2009). For this reason, if introducing ICT in career guidance activities, it is necessary to analyse potential technological solutions and identify the one being the most appropriate for the target audience.

The purpose of integrating ICT into career guidance activities is to assist young and adult individuals in making as much informed and appropriate choices of professions, education and occupations. The relevant literature is unanimous that both career guidance practitioners and ICT specialists play an important role in providing career guidance services (Harris-Bowlsbey, 1989; Harris-Bowlsbey, Sampson, 2001). The entry of ICT into this area provides opportunities to design and introduce new tools tailored for career counselling and guidance in particular (Jacob, 2012).

Everything indicates that the new technologies, especially social tools, have considerable potential in the field of career services (Hooley et al., 2010). A successful use of technologies and social tools in career guidance activities does not depend on only built-up skills or available technological features but also on readiness to accept changes that digital technologies can introduce in the provision of services (Kettunen, Sampson, Vuorinen, 2015).

The use of ICT in career guidance activities provides two essential gains: maximisation of learning opportunities and easy access to career resources (Sampson, Bloom, 2001, Bontariuc, 2007).

A great deal of computerised career guidance systems has been developed in a way to use them solitarily, without assistance from a career counsellor (Watts, 2001). However, most of the users of such systems believe that the greatest benefit is achieved if integrating the systems in broader career guidance activities. Scientists A. Barnes and A. G. Watts offered a career education model that used ICT in career guidance activities and had the following three elements to be employed: 1) as a resource; 2) as a communication tool; 3) for development of teaching materials (Barnes, La Gro, Watts, 2010).

J. P. Sampson too suggested combining the use of ICT in career guidance activities in several ways: 1) self-assistance (ICT resources are used without assistance from a career specialist); 2) homework in career guidance (after a counselling session, the client could be encouraged to employ self-assistance resources). J. P. Sampson proposed both kinds as a synchronous (phones, videoconferences, chat) or an asynchronous (e-mail, e-materials) activity (Sampson, Bloom, 2001).

T. Hooley (2011) mentioned the following kinds of ICT use by career guidance specialists: 1) to supply information; 2) to provide automatized interaction; 3) to provide a communication channel. *As a supplier of information*, the Internet offers a large information resource that could be used in career guidance activities as a broad library. Nevertheless, the authors agree with J. Bimrose that the use of broad sources, the effectiveness assessment of diverse resources, data integration from resources and their further creative distribution in various formats matching the needs of youth are not yet fully practised (Bimrose, 2017). *Automatized interaction* tries to recognise the individual and provide a customised service. It could be used to facilitate an initial examination and provide diagnostic elements, e.g. if doing some initial diagnostic tests. Technologies could be used to build up career education skills: e.g. through games and simulations, depicting the world of education and work in an interactive way. Online games too have become a channel of communication with automatized interaction among players (Maxwell, Angehrn, 2008, Betts et al., 2009). There are several ways of communication *via the channel*, which could be classified into three categories: 1) *one against one*. There is one career guidance specialist and one individual who needs guidance. E-mail, phones, social networks and another ICT could be used; 2) *one against several*. In this case, there is one career counsellor that has something to say and there are several individuals that listen to the counsellor (e.g. radio and television, blogs and social media technologies). The communication one against several/several against one involves interactive learning applications, the use of which has not been yet appreciated enough (Hooley, 2011, Salmon, 2003); 3) *several against several*. This is a kind of communication, in which individuals use online social networks to offer assistance with career development to one another (DiMicco et al., 2009, Din et al., 2012). This could involve the use of various tools, e.g. *LinkedIn, Facebook and Draugiem*, to establish online groups, going beyond the boundaries of the organisation and exchanging information. Customised applications for career counsellors could be developed to establish cooperation in the Internet environment by means of technologies.

Internet-based services (or service delivery methods) in the area of careers constantly change. For example, M. Offer (2004) referred to the following e-service delivery methods: Internet chat, e-mail, online discussion forums and text messages to and from mobile phones. However, A. Barnes, N. LaGro and A. G. Watts have identified as many as eight Internet environment tools: e-mail, chat, news groups, websites, SMS, phones, videoconferences and computer programs (Barnes, LaGro, Watts, 2010).

For career specialists, the use of ICT as a resource requires mainly digital technology, information search, aggregation and analysis skills. The use of ICT as a kind of communication, however, requires performing an assessment of potential digital technologies (Bontariuc, 2007). J. Bimrose, S. A. Barnes and G. Atwell (2010) have summarised the necessary “digital skills” to be able use ICT in career guidance (Figure 1).

The skills summarised in Figure 1 indicate that a successful use of ICT in career guidance requires significant social skills. For this reason, an essential role is played by in-person classes, in which the skills necessary for the individual use of ICT are build up. Nevertheless, there could be a number of factors affecting the amount of necessary assistance provided from a distance by means of digital technologies after in-person classes: verbal limitations, goal instability and impersistence, inappropriate

self-assessment and the lack of confidence, the lack of motivation, mental health problems, barriers to the choice of a career (Sampson et al., 2000).

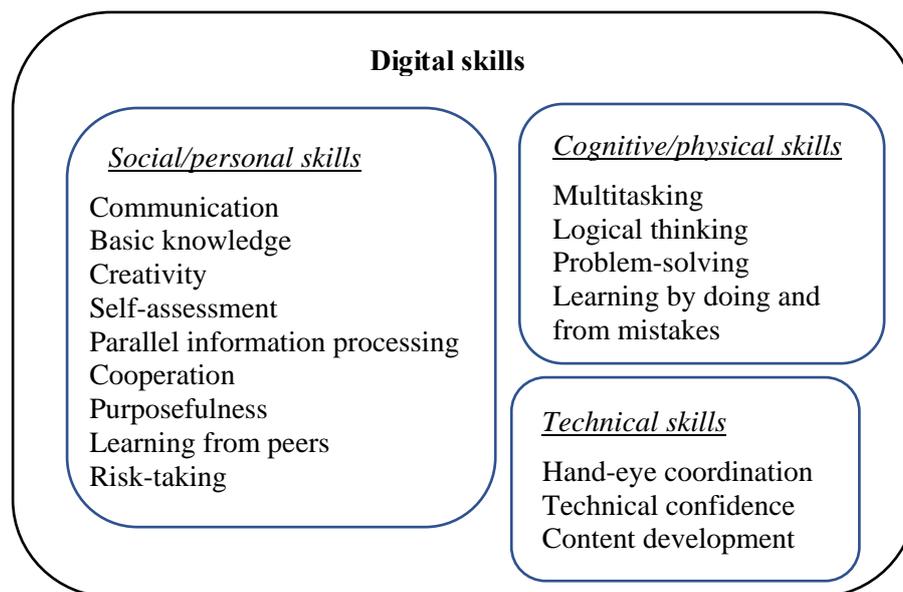


Figure 1. Skills necessary for the use of ICT in career guidance (Bimrose, Barnes, Atwell, 2010).

The authors agree with A. G. Watts – before using ICT as a component of career guidance activities, the career specialist has to be make sure that (Watts et al., 1996): 1) the client is intellectually, emotionally and physically able to use computer technologies and applications; 2) computer applications meet the needs of the client; 3) the client understands computer technologies and operations, and the career specialist has to follow the way the client uses ICT and to consider the use of ICT in future.

### **Career guidance model and the expert evaluation of ICT**

In the 1970s, the definitions of career education and career guidance were enhanced: career education focused on “self-understanding”, “thinking about opportunities” and “making decisions”. The DOTS model was developed based on these ideas (Law, Watts, 1977):

- self-awareness – “what am I?” (S - self);
- opportunity awareness – “where am I?” (O - opportunity);
- decision-making – “what will I do?” (D - decision);
- transition learning – “how will I cope with it?” (T - transition).

This model was employed in planning career education and career guidance activities and events at schools for a long time. However, during the course of time, the model was enhanced, focusing on how students learnt rather than what they learnt (Law, 2001). It is important in real work life too, and when developing their career guidance model, the authors focused on the additional element of the DOTS model – the way how students acquire their knowledge.

The theoretical literature refers to three main phases in introducing the use of ICT at schools: during the first phase, students begin using computers at school, and IT is the choice of a particular curriculum; during the second phase, ICT become an integral part of teaching practices aimed at promoting learning; during the third phase, the elements that would not be possible if no ICT were used are integrated in the curriculum (Fluck, 2001). The use of technologies means that the curriculum is delivered by employing technologies as a teaching aid.

Teachers integrate technologies into education and career guidance for various reasons: to promote the participation of students in building up their 21<sup>st</sup> century skills as a best practice; to go the easiest way; to combine various teaching methods; to show demonstrations; as well as for research and communication purposes (Hechter, Phyfe, Vermette, 2012).

Scientists P. Mishra and M. J. Koehler developed a model for using technologies in education that mainly represented a combination of subject content, technological opportunities and pedagogy (Mishra, Koehler, 2006).

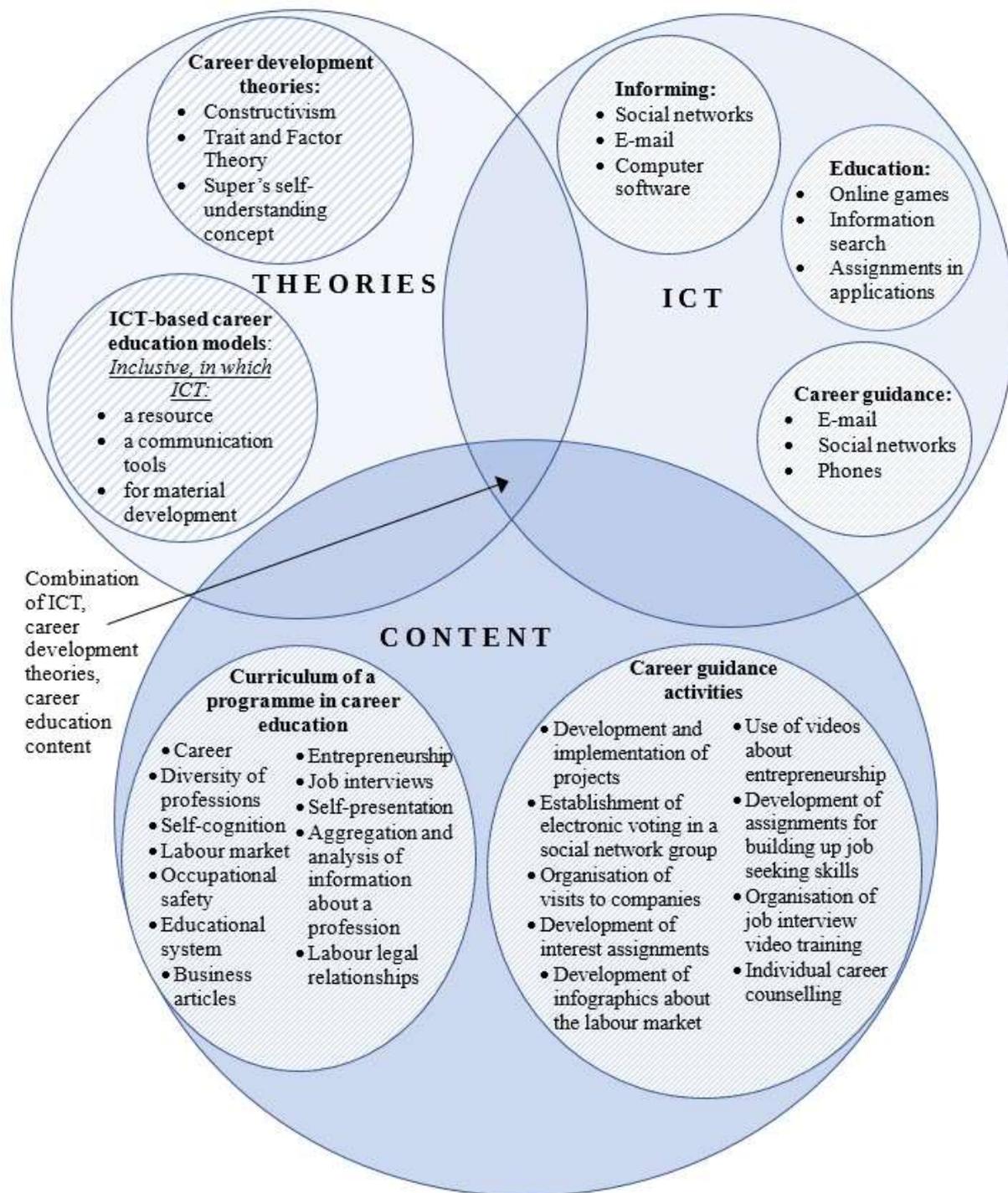


Figure 2. ICT-based Career Guidance Model.

The ICT-based Career Guidance Model (Figure 2) was developed based on both authors' work experience and the above-mentioned scientific findings. In the opinion of the authors, it is important to integrate the theoretical findings, the latest ICT achievements, the content of career education (professional diversity, labour market requirements and self-presentation skills) and the newest career counselling techniques (the project method, video training and company workshop visits) into career guidance activities. The authors believe that an interaction of the model's all sections: "Theories", "ICT" and "Content" in particular could yield the best outcomes in career guidance for young individuals.

As shown in Figure 2, the three circles overlap, i.e. interaction and a combination of all the three sections of the model is the most effective way of providing career guidance to young individuals. An expert evaluation of the model and its content of career education was performed in April 2017 to verify the consistency of the model with the goal set. The authors had a discussion with five experts to identify their compliance with expert selection criteria (experience in pedagogy, career guidance and ICT use). In the result, three experts were involved in the expert evaluation; their competences and experience met the selection requirements, as they were directly or indirectly associated with an interest education institution in Jurmala city. It was important to find out whether there was significant disagreement among the experts with regard to their ratings. The experts were marked by the letters A, B, C. All the experts were sent questions or criteria (Table 1) for the evaluation of the model to identify the usefulness of the model in providing career guidance to young individuals. Numbers from 1 to 5 points show the ratings by each expert from 5 – the highest to 1 – the lowest.

The expert evaluation's data were processed using the SPSS program and a Friedman's test. A Friedman's test is a nonparametric test that compares several paired groups. The test is used for interval and ordinal scale data. The data obtained are shown in Table 2.

Table 1

#### Expert ratings processed mathematically

No	Expert evaluation questions	A	B	C	Min	Max	A	Me	Mo	Σ
1.	Could the expected outcomes – purposeful, conscious, responsible and independent choice of careers – be achieved if implementing the career guidance model?	5	5	4	4	5	1	5	5	14
2.	Are the model's career education content and career counselling methods in compliance with the 21 <sup>st</sup> century standards for the use of information and communication technologies?	5	4	5	4	5	1	5	5	14
3.	What is your rating of the model on a five-point scale?	5	5	5	5	5	0	5	5	15
	<b>Min</b>	5	4	4						
	<b>Max</b>	5	5	5						
	<b>A</b>	0	1	1						
	<b>Me</b>	5	5	5						
	<b>Mo</b>	5	5	5						
	<b>Σ</b>	15	14	14						

Where:

Me - median;

Σ - the sum of all the elements;

Mo - mode;

Min - the minimum value;

A - amplitude variation;

Max - the maximum value.

Table 2

#### Friedman's test results

Number (N)	3
Chi- Square	1.000
Degree of freedom (df)	2
p-value (Asymp. Sig.)	0.607

The p-value = 0.607 > 0.05 acquired in the result of secondary processing of the data allows concluding that there were no significant differences in ratings among the experts.

After analysing the experts' ratings, the authors concluded that the experts evaluated the Career Guidance Model as the one promoting the purposeful, conscious, responsible and independent choice

of careers. The model's content of career education and career counselling methods, according to the experts, were in compliance with the 21st century standards for the use of ICT. The experts made the following comments: if implementing the Career Guidance Model, a career counsellor has to have ICT competences, and the outcomes considerably depend on the teacher of in-person classes. The authors also conclude that the understanding of a career guidance specialist about his/her role in this model and the ability to implement it are of great importance. Young individuals are used to the directive role of a teacher of classes, and initially such an approach is not easy to implement, as it depends on the teacher's pedagogical proficiency. The experts' opinions were consistent with the theoretical findings that in career guidance for young individuals, ICT have to be used inclusively – together with other career guidance activities. Overall, the experts have highly evaluated the model, which indicates that it is appropriate for the intended purpose – to assist young individuals in making independent, conscious and purposeful decisions on their future careers.

## Conclusions

- At present, career guidance at schools, especially in career education, is mainly implemented in accordance with the Trait and Factor Theory, yet the adolescent age and fast progress in technology create a need for career guidance activities being based on the problem-focused approach. ICT are one of the means that contributes to solving the problem independently through searching, aggregating and analysing necessary information.
- ICT play an important role in the daily life and communication of young individuals. However, ICT cannot replace in-person guidance. A career counsellor, using ICT in career guidance, has to carefully plan his/her career guidance, combining the educational content, theory and technology. According to the theoretical aspects analysed in the present research, the best approach is to integrate ICT as an inclusive model, in which the ICT is used in parallel with other guidance activities. The Career Guidance Model developed by the authors integrates the career guidance content into in-person classes and individual counselling sessions, ICT into career guidance activities as well as incorporates theoretical aspects that determine the choice of a career.
- The model developed by the authors was evaluated by experts. All the three experts gave high ratings to the model, indicating that the successful implementation of the model and the achievement of the goal largely depend on the professionalism of a career counsellor employing the model. The expert evaluation allows concluding that the model will contribute to the independent, conscious and purposeful choice of careers by youth if the career counsellor confidently uses adequate digital technologies in his/her career guidance for the youth.

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