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Foreword

The Institute of Education and Home Economics of the Faculty of Engineering, Latvia University of Agriculture organizes annual international scientific conferences **Rural Environment. Education. Personality (REEP).** Authors of the articles are from 7 countries - Czech Republic, Estonia, Germany, Kazakhstan, Latvia, Lithuania, Nigeria. Totally 24 educational establishments are represented in the Proceedings.

Aim of the Conference: to look for solutions, exchange ideas and highlight topical problems on the 21st century education tendencies in the context of ecology of education, competence, life quality in home environment, psychology, didactics of engineering science, usage IT, development of professional education and career, sport.

Thematic groups of the articles:

1. Ecology of education: ecological approach in education.
2. Education for getting competence.
3. Life quality in the context of home environment, home economics, household, consumer science, visual art.
4. Development of professional education and career.
5. Psychology.
6. Didactics of engineering sciences, usage of IT.
7. Sport pedagogy.

The Conference is looking for 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 scope of **ecology of education** cover themes on pedagogues efforts and contribution relating to holistic philosophy based teaching approaches in primary education, mentoring as an interaction system for the facilitation of the prospective teachers' readiness to integrate into the school environment, students' readiness for professional activities in school, learning the English language in virtual learning environment, ecological approach in education which is closely related to the improvement and further development of the conception for professional practice.

The structural model of the pedagogy students' readiness for professional activities in the educational environment were worked out. When developing the conception of pedagogy students' practice, educational ecology was chosen as the methodological basis. Educational ecology is one of the trends of human ecology: an integrative, interdisciplinary science trend of natural, social sciences, and the humanities that studies the development of a human being as an individual and/or social systems within the interaction with the multidimensional environment in its holistic perspective by ensuring the multi-aspect view on education. The structure of readiness for professional activities is formed of two basic components – psychological readiness and competence based readiness.

Ecological perspective in analysis and evaluation of specifics of distance education environment is particularly important for the facilitation of the sustainability of all society and the development of each individual. Ecological paradigm becomes more and more topical in modern education. This paradigm ensures the perspective in the research and sustainable development of distance education environment.

There is a great necessity to revise curriculum using new approaches, new principles in developing educational leadership in the classrooms following some principles such as: acknowledge the students' previous experience and learning; prepare the students for life in its widest sense; promote the

learners' independent and autonomous learning; estimate the students' needs in compliance with the learning activity and the achievements.

Education for getting competence focuses on competence based education including citizenship education for getting competence in higher education, kinds of competence and professionalism. Competency – based approach to teaching foreign languages was investigated. The structure of cross – cultural and communicative competences were worked out.

The need for sustainability in society, as well as globalisation, impact of information technology, and changes in the economic structure raise an issue on objectives and tasks of vocational training. Socioeconomic transformations demand education, including vocational education, to be viewed as a process in which a person develops spiritually and in which life experience transforms into an individual paradigm – a world view. The research reveals opinions of teachers and experts working in the sphere of vocational education about world views of vocational school students and possibilities of world view formation in vocational education system.

A constructivist approach in teaching in higher education for getting methodological and reflection competences was highlighted. A constructivist approach in education as a paradigm shift from teaching to learning with an emphasis on active individual's intelligence organization and immediate construction of new information to experience is a quite serious challenge in contemporary higher education.

One of the paper focuses on the evaluation of university education and its indicators. The research deals with the fundamental concept in the field of the quality of education and research activities and competencies of university teacher. The teacher acquires and develops them throughout his/hers career, in the preparatory stage and in the lifelong learning. Competencies are necessary for qualified and professional performance and they create professional standard. Professional standard fulfils its purpose only when its connected with the evaluation of the teachers.

The concept of self-assessment of learning process at basic school, the role, function and place in the learning process were investigated and are explained. The results show that the self-assessment skills development has contributed the improvement of learning outcomes. The importance of self-assessment in teaching at basic school as an essential component of high quality education has increased.

Articles on **life quality in the context of home environment** discuss acquiring life activity skills of primary school pupils' in the aspect of teaching content of **home economics and technologies**. The study of Home Economics and Technologies is a significant study subject where pupils' knowledge, working skills and attitudes are developed which is the basis for acquiring pupils' life activity skills. It is essential to link the learning experience with the real world of work. The choice and topicality of the research theme was determined by the observed contradiction in contemporary study of Home Economics and Technologies between students' (future primary school teachers) handicraft skills not mastered at school and the possibilities to acquire the methodology of the study of Home Economics and Technologies as well as between the pupils' self-organization and self-discipline skills and acquiring the study content of Home Economics and Technologies from the perspective of life activity. During the research scientists explored the proconditions for acquiring life activity skills for primary school pupils in the study of Home Economics and Technologies.

The researchers explores and systematically describes applications of smart textiles for healthcare with sensing and actuating functions and introduces to the main principles of technology for textile sensor manufacturing. Generally, smart textiles are referred as textile products with additional value, i.e. they have the common characteristics of textiles, but insure additional functions, providing attractive solutions for a wide range of application fields, such as healthcare, clothing for protection and sports and technical textiles for automotive industry. However, manufacturing of smart textile products demands a complex and innovative technological approach, combing conventional textile manufacturing technologies as weaving, knitting and embroidering with technologies originating from the electronic sphere, such as coating, lithography and ink-jet printing.

The researchers analysed home environmental factors affecting students' academic performance. Based on the findings it was recommended that parents no matter their busy schedule should make out time to sit down with their children or wards and check their children's academic work, direct them where necessary, discuss the academic problems of their children with their teachers or school guidance counselors so as to detect the students problem early enough and tackle it before it affects the students.

The World Health Organization (WHO) particularly highlights the actions that need to be taken in order to draw attention to health promoting effects, with particular emphasis on healthy eating and physical activity. Researchers of **sport pedagogy** emphasise dietary habits connection with sports activities.

Development of professional education and career research items comprise the nature of problem–based learning: development of decision-making skills, increase knowledge, creating social enterprise as an innovative resource in reduction of unemployment, decision-making process in business. Small and medium-sized enterprises increases the efficiency of the national economy are an absolute priority. Small and medium-sized businesses are able to timely respond to changes in market conditions. The study aim was to analyse the success of business decision-making process, revealing young people's decision-making skills in business development need to increase the long-term small and medium efficiency.

Unemployment is actual problem in many countries around the world. Unemployment means that the human resources that are one of the manufacturing resources are not fully used. Thus the yield of gross product, possibilities of consumption of inhabitants and company investments reduces. If unemployment is permanent, the national economy in total suffers essential damages. Integration of social economy and social business activity in the practice of social work is considered to be very important future challenge of social work in the world for solution of unemployment and the social problems caused by it.

Scientists discuss CEOs decision-making processes by emphasising the important role of business intuition and simultaneously asking the question about how correct such intuitively taken decision can be. As identified in studies, the practice confirms the importance of intuition in decision-making in business. The investigation about the relations between the decision-making process and cultural environment, rational and irrational aspects of CEOs decisions were done and recommendations for sustained development of enterprises business were developed.

With the fast development of information and communication technology (ICT) and the Internet entering our life, we use the Internet daily for obtaining information and for entertainment, for education and spending leisure time, and as a serious profit-gaining source. The Internet and the opportunities it offers may be also used in career counselling. The purpose of using the Internet and Internet tools in career counselling is to help individuals, who need it, develop computer skills, obtain information regarding career choices or career development, as well as receive support from a career consultant. Consultations, information resources, and interactive evaluation tools may be received anytime – 24 hours a day. One of the articles includes the results of research on the use of Internet tools in career counselling.

Articles about **psychology** cover discussion about scientific and cultural processes, including students' spiritual values in the environment of non-formal education and job stress, coping strategies and professional deformation of human resource managers.

Material values have a great influence on modern society, although sustainable society can exist only if it has balanced value system. Future society will consist of nowadays students therefore the aim of the research was analyzed and evaluated students' spiritual values in the environment of non-formal education.

Human resource (HR) manager role is related with human resource management and has high sense of responsibility; therefore it is important to assess the degree that HR managers suffer from overload, emotional burnout and professional deformation. Overload result - stress affects work productivity, quality, work error and trauma amount. HR managers are suffering from mid-level of stress and

research shows that the main difficulties that HR managers are facing during their professional activity are workload and inadequate deadlines. HR managers are using the following coping strategies - „Assertive Action" and „ Social Joining", it means that HR managers can defend their rights without oppression of others, and stress situations are managed by joining together with others to deal with the situation together.

Use of IT programs and tools for organizing independent studies in mathematics e-environment were discussed in the section of **didactics of engineering sciences, usage of IT.**

A structural scheme of the mathematics study form modules was created. More attention was paid to the IT software integration in the learning process, as well as individual works for independent studies. Mathematics study process has been improved with an e-learning environment Moodle, in which there are placed the study materials (including interactive materials). Results of student survey shows that the use of MathCad for solution verification in computer classes and solutions' examples placed in e–environment, allows students to learn mathematics software independently, but for teachers reduce the time for checking students' individual works.

Also the possibilities of usage of information communication technologies (ICT) in lessons of home economics and technology were discussed. The scientists investigate how much and how ICT competences are determined by the schools' material base, the headmasters' and leaders' approach to the application of ICT, their competences to use ICT in classrooms and development possibilities.

First year and postgraduate students' information skills were investigated. Seven pillars of information literacy were discussed.

One of the articles presents advances in implementation of so-called eBig3 approach in open education. This approach could be imagined as a synergy of three key technology-enhanced learning elements: e-learning, mobile learning and TV-learning. Authors briefly describe this innovative learning method, emphasize the sequence of learners learning activities, and introduce first results, success factors and food for thought. The main aim of this project is the offering of open courses for the wide range of public, making them available by different means of technology, as well promoting of lifelong learning in the whole country and neighbouring states.

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

Many thanks to the authors, reviewers and organizers for their contribution in international scientific level.

On behalf of the Conference Organizing Committee

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Content

Ecology of education: ecological approach in education

Curriculum as an instrument in developing teaching and learning

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Abstract: The digital generation, the development of digital economy, globalization, the restriction, the development of the branches of national economy are significant factors for a sustainable development of education to become one of the most significant issues of the development of society. Education in school practice takes place in a dramatically new informative environment (social nets, digitalization, plenitude} and for the future, which cannot be clearly characterized and described. One of the objectives of the curriculum development is the assurance of the teaching / learning in classrooms of all levels. It all is influenced both by the new technologies coming into our national economy and also in school practice, and by the changes of the perception and the way of thinking of the young generation. From this point of you there is a great necessity revise curriculum using new approaches, new principles in developing educational leadership in the classrooms. The research of prospective teachers shows that educational leadership for qualitative teaching / learning follow some principles such as: acknowledge the students' previous experience and learning; prepare the students for life in its widest sense; recognize non-formal learning within the formal one; promote the learners' independent and autonomous learning; estimate the students' needs in compliance with the learning activity and the achievements; plan the activities and manage assistance in order to encourage learning.

Keywords: curriculum, teaching / learning, new generation.

Introduction

We live in a time of rapid changes, our everyday habits are changing, and so is the society, the emphases on values, and simultaneously there goes on continuous development and improvement process, there are continuous advancements in the teaching and learning process, extensions, search for more and more effective techniques. It all is influenced both by the new technologies coming into our national economy and also in school practice, and by the changes of the perception and the way of thinking of the young generation. Representatives of the young generation - the digital generation are sitting at school desks and the existing education system is not meant for people of this generation. Marc Prensky (Prensky, 2001) names several essential changes in the perception of the contemporary learners– irregular speed of perception in contrast to the traditional speed, parallel data processing in contrast to sequential processing, the perception of the picture and only then the perception of the text, preference is given to the scenarios of the game, imagination prevails over reality.

Digital economy , which is today's reality, radically changes the habits of our society and it exerts impact on its social and economic structure , as pointed out in the statement of the Committee of European economic and social affairs on the theme " Digital market – the driving force". (Eiropas ekonomikas…, 2012). Statistic data from Eurostat is reflecting digitalization of the young generation. In 2010 more than 91% of 16-24 years old people, 76 % of 25 – 54 years old people and 40 % of 55 – 74 years old people were using the Internet more than once a week (Eurostat, 2011, Eurostat, 2012). So new communication technologies have really become an essential part of their life. The rapid growth of technologies causes new challenges for the teachers, who often have to follow the learners' digital lifestyle. Initiatives to raise the role of ICT in education usually confine themselves to putting up the necessary equipment and implements in the classrooms without reflecting upon what influence they will exert on the teaching / learning processes and how they will change them.

It is quite clear that the future will require a population with the confidence and skills to meet the challenges posed by fast and far-reaching changes. It is sure to influence the content of the curriculum and its implementation, as well as the teaching / learning process in the class.

The basics of curriculum is studying content and studying process planning (Andersone, 2007), so its effective development appropriate to the development of science and society is very important for qualitative changes in school practice, i.e. teaching/learning processes perfection, teachers' competence improvement, etc. In Latvia like in many other European countries educational standards' and curriculum's reorganization has started. Digital generation, digital development of economy, globalization and economics branches' restructuralization and development are important factors to make development of education by one of the most important problems of social development. One of the targets of composing curriculum is providing effectiveness of studying and teaching process and management.

The goal of the article is to characterize development of curriculum as an instrument in developing teaching and learning.

Methodology

Developing teaching and learning

In school practice there are used three essential pedagogical dimensions, which are connected with the quality of learning and teaching – the promotion of the learners' intellectual development, the significance of qualitative learning environment, development of the learners' comprehension of the significance of their own work. (Ayers, Dinham, 1998).

Modern school practice is responsible not only for providing the classroom with modern technological equipment but also with modern achievements in teaching/learning process' management. New generation technologies are entering school. "Microsoft Surface" and "SMART Table" are two examples demonstrating the future view of a school board and desk combination. A computer makes a desk, and a big touchscreen makes a table plate. On the touchscreen students can see their tasks for the day and their hometasks; they can draw shapes, settle maths tasks, write their comments or play intelectual games with their classmates. All this is used in order to provide qualitative teaching/learning process management.

In the Internet blog "Answers" the question is asked – What is your understanding of high-quality teaching and learning? Byron Samuel answered: what I understand from high-quality teaching and learning is that the students are taught by highly qualified teachers who do not just have appropriate education in the subject they are teaching but they also have a valid experience in that field as well, and only a teacher with such abilities can teach their students with the skills they require to compete in their field on interest today. (Samuel, 2012)

So thinking about qualitative teaching/learning process, its determined and aimed at students' needs and interests leadership becomes more and more actual.

Consequently, the teacher teaches qualitatively (Fink, 2006):

- by challenging the learners, by creating situations, developing their creative and critical thinking, skills of solving problems and skills of taking decisions;
- by ensuring facilities of active learning, because learning by doing promotes stability of the learners' knowledge;
- by caring for the way the students learn;
- by ensuring the supervision of the whole class, thus strengthening the students' learning potential;
- by ensuring feedback in the form of praises and help;
- by ensuring an honest and just assessment system.

However, the teacher needs corresponding security - a good, modern curriculum, a rich learning environment, support on the part of the school administration and the society.

Curriculum development

The concept of curriculum is not new. On the whole the authors explain the concept of curriculum similarly, the difference lies only in nuances.

Alan Tom (Tom, 1984) defines the essence of curriculum shortly and precisely as 'a program for teaching and education. B.Moon (Moon, 2002) remarks that the concept of curriculum embraces the relationship of subjects and the selection of content, teaching methods and everything else that secures a successful learning and the assessment of the learning outcomes.

V. Schubert (Schubert, 1986) names the basic curriculum concepts – the choice of aims, the content of teaching and experience, organization and assessment. It all has something in common with Aristotle's conception on the categorization of knowledge and its aspects:

- the theoretical aspect - a program, which includes definite knowledge, theories;
- the practical aspect: a process, which includes thinking and action during the process of learning; praxis, which finds its expression in thinking and in which the action is assessed according to its expedience;
- the productive aspect - outcomes, understood as the competences obtained.

A more detailed analysis has been given by J.Goodlad (Goodlad, 1997). He distinguishes five kinds of curriculum concepts:

- the ideal curriculum - it is defined by its creator and the designers,
- the official curriculum - the aims of it are confirmed by the state and the educational boards (ministries of education), and it is adopted by the educational institutions,
- the comprehended or perceived curriculum - it enjoys the society's confidence because it reflects the society's subjective points of view on what should be taught,
- the operative curriculum - it is a curriculum put into practice in class,
- the experience-based curriculum –it is a curriculum which the learners have gone through in class.

The curriculum is a crucial component of any educational process. It addresses questions such as what students should learn and be able to do, why, how and how well. In the past, the curriculum was designed merely from the perspective of its cultural transmission functions with its structure consequently reflecting discrete areas of knowledge. Given the complexity of today's ever-changing world, contemporary approaches to curriculum development far exceed the traditional understanding of curricula as merely plans of study or lists of prescribed content. (UNESCO IBE, 2006)

There should be taken into consideration some general principles in the curriculum development:

- the goals and tasks of the school education programs of all levels, the basic values are ***united***, there is being developed united education space;
- the content of education comprises the most significant experience of mankind and the values of culture, it is ***general*** enough;
- all the goals and tasks are mutually connected and are to be viewed only in ***entirety*;**
- the content of education at its any degree is ***sufficient*** foundation for further studies.

There are different approaches to curriculum development. More often there are used four approaches (Visscher-Voerman, Gustafson, 2004):

- instrumental approach;
- communicative approach;
- artistic approach;
- pragmatic approach.

Instrumental approach is based upon systematic analysis and development of programs. For the most part there are searched answers to the following questions (Tyler, 1949, Taba, 1962).

- Which objectives should education aim at?
- Which learning experiences are most suitable to attain these objectives?
- How could this learning experience be organized effectively?
- How can we determine whether the objectives have been achieved?

In ***communicative approach*** the stress is laid on the involvement of and discussions with all the interested parts concerned – the builders of programs and the executers of the programs, specialists of the corresponding spheres, the parents, school leavers, etc. (Walker, 1990). First of all the parts express their points of view on the problems, come to an agreement about the most essential things , then they generate ideas concerning the potential solutions and agree upon the preferable solution,, transform it into the description of the final product or a developed curriculum.

Artistic approach requires creative approach of the builders of the curriculum, which is based more on subjective understanding of the objectives of the curriculum and the needs of the learners. In this approach the teacher plays the main role (Eisner, 1979). Here emphasis is laid on the creative interaction in a particular context in order to satisfy the learners' needs in a meaningful way by constantly developing the curriculum.

Pragmatic approach is turned to the curriculum product (knowledge, skills, practical availability). Curriculum development goes on in close interaction with the local practice and their users. Formative assessment plays an essential role in order to come to the desired result. (Goodlad, 1979). J. A Komenski, has also drawn attention to the fact that "it is necessary to teach only things, which bring apparent benefit". (Komenskis, 1992). The choice of the approach to curriculum development is determined by many reasons. The more attention is paid to the learners' practice in classroom, the wider are the possibilities of the artistic approach. On the other hand, when we think about the context and the final product the pragmatic approach is more suitable. However, on the macro level instrumental and communicative approaches are more frequently used. Learning in school practice takes place in a dramatically new informative environment (social nets, digitalization, plenitude) and for the future which we cannot clearly characterize and describe. Thus one of the vital problems of the contemporary curriculum development is successful inclusion of technology-supported learning in it. The curriculum should not only satisfy the learners' needs of basic knowledge and basic skills , which will ensure their abilities in their further learning , but also their needs of sustainable activity in the globalized and digitalized world.

Results and discussion

Surveying 24 prospective teachers from second study year of University of Latvia in autumn 2012, the question which principles for qualitative teaching/learning they consider by the main ones. In order to estimate their answers we have chosen principles for educational leadership for teaching/learning composed by James and Pollard (James, Pollard, 2006):

- to prepare students for real life in its widest meaning;
- to offer to acquire the main knowledge areas;
- to recognize students' background;
- to plan activities and to structure assistance to stimulate studying;
- to assess students' needs according to studies and their results;
- to stimulate students' independent studying;
- to promote students' communication during the learning process, their receiving and exchange of knowledge;
- to recognize importance of informal studying, i.e. of studying besides the school;
- a teacher studies all the time;
- a teacher makes effective studying environment.

The research of prospective teacher shows that educational leadership for qualitative teaching / learning follow some principles such as (Figure 1):

- to recognize students' background;
- to prepare students for real life in its widest meaning;
- to recognize importance of informal studying, i.e. of studying besides the school;
- to stimulate students' independent studying;
- to assess students' needs according to studies and their results;
- to plan activities and to structure assistance to stimulate studying.

So these principles must be used in curriculum development, because they are an important tool to provide the educational process in the classroom in the teacher's hands.

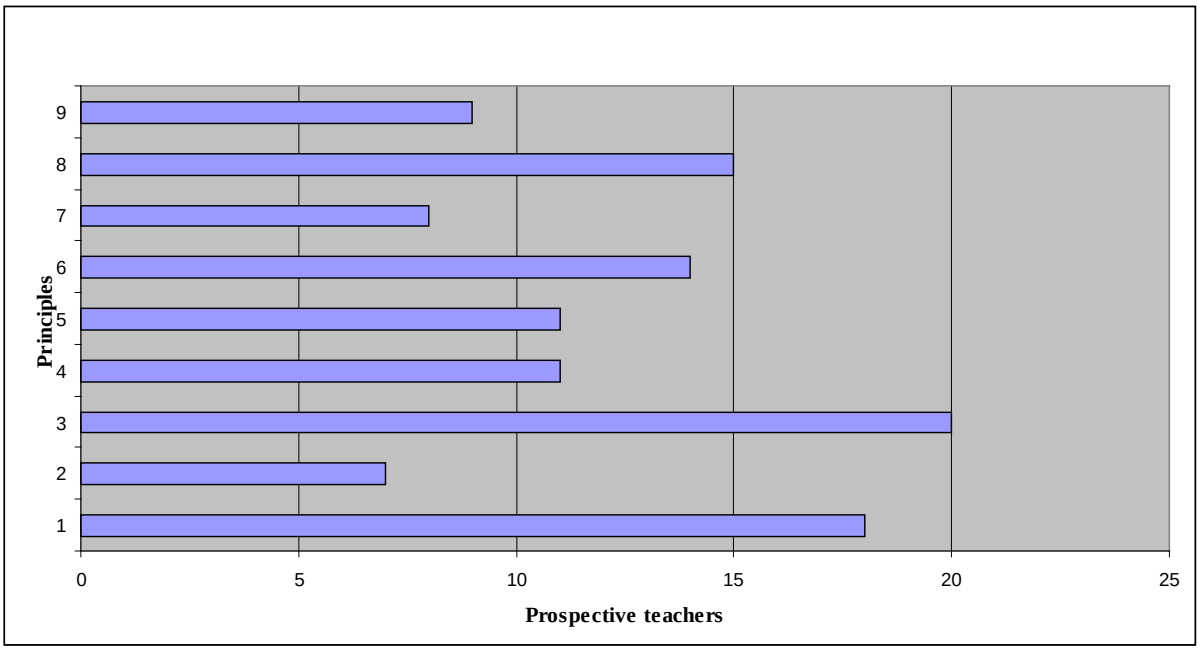

Figure 1. Prospective teachers' opinion about principles for qualitative teaching/learning

Approaches to curriculum development usage for qualitative teaching/learning and principles for qualitative teaching/learning is described in Table 1.

Table 1

Connection of approaches towards development of curriculum with the principles for educational leadership for qualitative teaching/learning

The approach	Connection to the principles for educational leadership for qualitative teaching/learning	Prospective teachers' opinion
Instrumental approach	To plan activities and to structure assistance to stimulate studying To offer to acquire the main knowledge areas To prepare students for real life in its widest meaning	To plan activities and to structure assistance to stimulate studying To prepare students for real life in its widest meaning
Communicative approach	To promote students' communication during the learning process, their receiving and exchange of knowledge To recognize importance of informal studying, i.e. of studying besides the school. To stimulate students' independent studying	To recognize importance of informal studying, i.e. of studying besides the school To stimulate students' independent studying
Artistic approach	A teacher makes effective studying environment A teacher studies all the time To assess students' needs according to studies and their results	To assess students' needs according to studies and their results

The approach	Connection to the principles for educational leadership for qualitative teaching/learning	Prospective teachers' opinion
Pragmatic approach	To recognize students' background To assess students' needs according to studies and their results To recognize importance of informal studying, i.e. of studying besides the school	To recognize students' background To recognize importance of informal studying, i.e. of studying besides the school

So a prospective teacher prefers instrumental and pragmatic approaches towards development of curriculum. Their background influences their understanding of importance of curriculum in school practice, when curriculum is used more for students' knowledge and skills management than for teaching/learning process leadership. Certainly, the choice of an approach towards curriculum development is dictated by various factors, which are not only the teachers' background but also the school development clear vision, understanding of the new generation's needs, development of the society, etc. If we draw more attention at the students' practice in the classroom, then artistic approach and communicative approach give opportunities to use curriculum as a tool for developing leadership in modern school practice.

Conclusions

Essential changes have taken place in the society, in which a new digital generation has grown up, digital economics is developing, more and more new technologies come into school practice, and that is the reason why curriculum development is so significant in order to ensure qualitative teaching and learning. The rapid technology development calls forth new challenges for the teachers, who often have to follow their learners' digital lifestyle and continuously develop the methods of teaching and learning.

Teachers and, even more, future teachers use previous experience analyzing curriculum development possibilities and educational leadership for qualitative teaching/learning. So a closer attention is attracted by instrumental and pragmatic approaches towards curriculum development. At the same time, students living in the globalized world, using new technologies and sometimes even overcoming their teachers in getting information, are studying at schools. It is essential for nowadays teachers to manage teaching process, to assist students arrange their knowledge and information they get. So artistic and communicative approach towards curriculum development become more and more popular. In these approaches students' digital skills are used for getting new knowledge These approaches are especially challenging for teachers.

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Holistic philosophy based teaching approaches in Latvian primary schools: Primary education teachers' view

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Abstract: Current global tendencies in education highlight the need for a balanced and sustainable system of general education. The present paper summarises the findings from theoretical and empirical inquiry into the application of holistic approach to education, which is construed as a way of increasing the sustainability of the latter. Thus, the paper exposes the views of primary education teachers on the application of holistic approach in real and ideal pedagogical situations in Latvian primary schools as well as illuminates the teachers' perspective on the components of the teaching and learning process that are indicative of a holistic approach to the two above-mentioned types of situations. Quantitative empirical inquiry draws on survey data. The study involves 676 primary education teachers from different regions of Latvia, including rural and urban areas. Findings about Latvian primary education teachers' views on the application of holistic approach to shaping the teaching and learning process in primary school as well as insights from analytic readings of relevant scientific literature support the premise that holistic approach to shaping the teaching and learning process bears favourably on learners' spiritual and physical development in both real and ideal pedagogical situations. In addition, the findings from empirical inquiry corroborate the author's initial suppositions regarding the content of the components of the teaching and learning process.

Keywords: holistic approach, primary education, teachers' view, teaching and learning process.

Introduction

Latvian system of education is comparable with that of most European countries and aligned with the aims of the Bologna Declaration (United Nations…, 1998).The closing decade of the twentieth century was the time when normative documents that regulate the process of education in Latvia increasingly began to feature such concepts as sustainable development and holistic approach.In the course of the last five years, educational standards and curricula have been updated to include many topics, skills and concepts germane to sustainable development. In these normative documents (IZM, 2013; VARAM, 2002; VISC, 2013), sustainable development is construed as an approach that facilitates an education of skills, competences, values and responsibility and supports civic participation. Many scholars (Ilisko, 2005; Garleja, 2006) argue that the learners' cognitive activity is inextricably embedded in their social environment. Hence, the present paper contends that the process of inquiry is grounded in each learner's personal responsibility and ability to know, comprehend, empathise and communicate; all of the above combine in an integral whole with other rational and empirical abilities, which means that the learner's inquiry is perceived holistically as an inclusive entity. Several studies (Beļickis, 2000; Salīte, 2002; Bundsgaard, Hansen, 2011) discuss holistic approach as an essential facet of sustainable development. It is argued (Beļickis, 2000; Miller, 2013) that holistic approach ought to be acknowledged as a viable methodology and learners' personal experiences targeted through natural inquiry into the subject matter with a view to making sense of the latter.

The urgency of the study stems from the need for a holistic approach to shaping the content of primary education, which would render the latter sustainable in terms of planning and implementation. The paper seeks to substantiate the viability of applying holistic approach to shaping the content of primary education by summarising the contexts and conceptual ideas regarding the essence of holistic approach that are proposed by representatives of different philosophical schools and scientific

disciplines. In addition, the study aims to appraise primary education teachers' views on the application of holistic approach in real and ideal pedagogical situations in Latvian primary schools.

Theoretical underpinnings of holistic approach

The holistic perspective is a comprehensively discussed topic in contemporary scientific discourse (Schreiner, 2005; Bundsgaard, Hansen, 2011; Ilisko, 2005) where it is considered indispensable for building sustainable societies.

According to Lemkow (1990), the bedrock of holism is the ecological and systems approaches, which are seen as a treasure throve of wisdom derived from the world's major spiritual traditions. Miller (1993) discusses holism in material, spiritual and biological contexts and highlights the interrelatedness of physical and social worlds by referring to Dewey's (1938) ideas about human existence. Many scholars (Nakagawa, 2000; Forbes, 2003) address the content of holism as a concept in the educational context and define the former as a dimension of integrated education: as a set of cognitive, economic, social and emotional features as well as a totality of quantitative and qualitative values. A.Kandavniece (2004) explores holism through the prism of comprehending wholeness, which involves appreciating a relationship of interrelatedness between constituent components of complex phenomena. F.Capra (2002) emphasises connections among life's biological cognitive and social dimensions and analyses the essential links between modern science, philosophy and social life. All of the above are examined as a whole, which is subsequently parsed to constituents according to the principle of random selection. F.Capra (2002) focuses on the principles of interrelatedness. Many other scholars likewise actively address the implications of new epistemological perspectives on human perception of nature (Lemkov, 1990; Nakagava, 2000, etc.). S.H.Forbes (2003) examines holistic approach as an intellectual and social dimension by making use of different methodologies and integrating the insights of renowned advocates for humanistic pedagogy. J.P.Miller (1993) discusses holism in material, spiritual and biological contexts and highlights the interrelatedness of physical and social worlds by referring to J.Dewey's (1938) ideas about human existence. Holistic approach denotes a particular combination of related elements that allows for an integration of different spiritual and scientific perspectives and hence draws from romanticism, humanism and other alternatives to the trademark atomistic worldview of modernity.

Thus, the content of holistic education boils down to the following considerations: (1) interrelatedness, interaction, cohesion and integration; (2) biological, physical, ecological, spiritual, social, moral, aesthetic, intellectual and other aspects of human life and personality development; (3) conscious inclusion in education of knowledge, insights and perspectives from other disciplines; (4) development of the learner as a whole and their active participation in the global community; (5) critical perspective on dominant worldviews and practices within an alternative educational paradigm.

Holistic approach in the content of primary education: Conceptual underpinnings

The principles of sustainable development are grounded in a learner-centred, humanistic and democratic approach (Rogers, 1969; Helminga, 2006). However, the global movement and collective tendency in scientific research is orientation towards holistic education as a universal dimension of human life (Beļickis, 2000; Helminga, 2006). This stems from the need for learners to perceive, feel, explore and comprehend the subject matter holistically, which contributes to their spiritual and physical development, helps establish connections with the real life as well as develops learners' ability to evaluate their own oneness with the world and to understand it. I.Beļickis (2000) argues that seeking connections between the objects of learning, perceiving their content as essentially united and looking to pinpoint how seemingly discrete objects are related in an ultimate universal whole are the hallmarks of holistic approach. This requires an ability to summarise – identify links between ostensibly unrelated phenomena within a whole and make comprehensive connections between the objects of learning and the multiple aspects of their content. F.Capra (2002) and E.T.Clark (1997) also acknowledge the inherent relatedness of such concepts as 'systemic' and 'holistic'. Taking a systemic view on the actions of a multilayered personality suggests that the content of a systemic approach is essentially diverse. And yet, its chief principle is that of looking for the common grounds. These

common grounds are each learner's physicality and spirituality that are coordinated with the different forms that the manifestation of the learners' freedom takes.

Analysis of the aims and objectives of national primary curriculum (IZM, 2013; MK, 2006) exposes some glaring deficiencies. Not all school subjects have clearly spelt out criteria for generalisation of content. It means that no adequate system for differentiating between more and less significant material exists. Teachers are offered a wide choice of textbooks by different authors with different publication dates. These textbooks are expressly created for specific school subjects to be taken at specific stages of primary education (VISC, 2013). Holistic approach (Rose, 2005; Schreiner, 2005), however, posits there is no need to differentiate between the levels of conceptual understanding in junior and senior forms. Also, knowledge and skills development are not artificially divided in successive stages; rather, they are viewed systemically as wholes. Thus, by choosing the holistic approach, the teacher leads each learner to generalisation (Volša, 2002), taking care to consider the degree of each child's cognitive development. Primary education curriculum, meanwhile, tends to consider learners' cognitive development on a general scale.

By taking the view on a human being as an integrated set of body and mind, sensation and emotion, many scholars (Miller, 1993; Clark, 1997; Wilber, 1997) endorse the belief that the knowledge one accumulates in the course of one's life should function as a whole (i.e. serve the betterment of human existence), for education has but one subject – life in all its manifestations. It means that learners become discoverers and creators of knowledge who use themselves, each other and the environment rather than the teacher as main resources for knowledge acquisition. Holistic approach centres on conscious knowledge acquisition (Rose, 2005; Schreiner, 2005) that goes hand in hand with formation and development of skills, attitudes and values (Beļickis, 2000), which accompany achieving a holistic understanding of the world. These considerations concern not only the content of learning (the subject matter) but also teacher and learners' personality, abilities and cultural affiliations that colour their teaching and learning, because the whole that is sustainable education cannot consist of discrete, unrelated components of the teaching and learning process (Clark, 1997).Wilber (1997) claims that the curriculum can be planned to include teacher- and learner-selected topics that are chosen on the grounds of shared interests. He maintains that a thematic approach to teaching addresses the intellectual, social, emotional, physical and aesthetical facets of learners' growth. The abovementioned studies suggest that holistic approach can be described as an approach of integrated wholeness to personality development (Clark, 1997; Wilber, 1997; Rose, 2005; Schreiner, 2005) or, in other words, as one that seeks to facilitate the development of an integral individuality (Volša, 2002) while viewing human personality as a whole.

Advocates for humanistic pedagogy (Rogers, 1969; Helminga, 2006) use the model of holistic approach to describe the opportunities for child development and upbringing that respect the child's natural characteristics and the specific conditions of child-environment interaction. The tenets of humanistic pedagogy inspire a holistic approach to the content of primary education because its prime methodological concern is the child viewed as a whole and the teacher's attempts to understand the child's soul, behaviour and actions. Hence, in holistic education, freedom or autonomy (Little, 1991) denotes internal independence, liberty of spirit, self-expression and action. Meanwhile, a lesson is considered a balanced process of interaction between all the parties that is guided, not supervised, by the teacher (Beļickis, 2000). From a holistic perspective, the teacher's task during the lesson is to aim for wholeness of approach, which involves a dynamic interplay between physical, work-related, moral and aesthetic education with due consideration for the child's individual characteristics, abilities and age (Miller, 1993). All these aspects are regarded as equally important and complementary.

Sampling strategy and methodology

The empirical study relied on data from a written survey of Latvian primary education teachers (N=676). Non-probability sampling with the typical case method was applied. A standardised questionnaire was designed containing 22 questions – statements with multiple choice options. This instrument was used to obtain quantitative data. The respondents were asked to choose the approach (either formal or holistic) that best fits the real and the ideal pedagogical situation in primary school (Forms 1 to 9).

Adaptation of the questionnaire involved structural factor analysis and usability analysis of the indicators that describe the phenomenon under study by taking into account internal cohesion among discrete factors. Factor analysis of the internal structure of the questionnaire (its distinct parts) was exploratory. Cronbach's Alpha was used to assess the reliability of distinct items in the questionnaire. Factor analysis of the internal structure of the questionnaire involved factor analysis in the indicator space of different approaches. Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) equals 0.964 for the real situation and 0.956 for the ideal one, which corroborates the viability of performing factor analysis of the questionnaire's internal structure.

The survey aimed to (1) identify the components of the teaching and learning process that are indicative of the application of holistic approach to facilitating the acquisition of subject matter and (2) ascertain the views of primary education teachers on the holistic approach in real and ideal pedagogical situations in Latvian primary schools.

Data processing and analysis of the results

Factor analysis corroborated the tripartite factor structure of the phenomenon under study. Interpretation of the factors was informed by specific indicators – those items from the 22 question set with highest factor loadings. The following key components of the teaching and learning process were inferred from primary education teachers who evaluated the application of formal or holistic approaches in real and ideal pedagogical situations: *the social component* (F1), *the organisational component* (F2) and *the content component* (F3). The social component (F1) emerged as primary from indicators that enable evaluating the respondents' attitude towards the following types of teaching and learning strategy: teacher and learners' social positions, adequate development of learners' self-appraisal during lessons and their acceptance of other learners; opportunities for learners to cooperate through different forms of learning (group work, pair work, etc.). This component also includes the teacher's readiness to adapt their position to the changing requirements in the educational setting. The organisational component (F2) emerged as secondary from indicators that concern the organisation of the learning environment, proper emotional ambience during lessons, an atmosphere of trust among learners as well as the dynamics of teacher-learner interaction; the teacher's ability to rely on the learner-centred approach; learners' developing a positive self-appraisal. The content component (F3) emerged as tertiary from the following indicators: usage of appropriate teaching and learning materials and innovative methods, lesson planning for holistic learner development (both spiritual and physical) – holistic approach to facilitating the acquisition of subject matter; usage of appropriate methods to promote a sustainable, positive attitude towards subject matter. The three abovementioned factors were evaluated by the respondents in terms of formal and holistic approaches to facilitating the acquisition of subject matter in real and ideal pedagogical situations in primary school. Mean, median, mode, standard deviation and other calculations of descriptive statistics were made with a view to procuring arithmetic means of relevant indicators for the three components and thus inferring the respondents' attitude towards alternative teaching and learning strategies.

Evaluation of the social component is the clearest in ideal situations (V) with scores below 2.17 from more than half the respondents, which suggests that they endorse the holistic approach. Meanwhile, 50% of the respondents are neutral when evaluating this component in real (R) pedagogical situations (social component (R): -0.33). At the same time, not least than half the respondents make negative evaluations of the organisational and content components in real (R) pedagogical situations (organisational component (R): -1.57; content component (R): 1.44), which implies preference of the formal approach. Conversely, in ideal pedagogical situations (V), these components are evaluated positively by at least half the respondents and receive scores above 2 from 25% of the surveyed teachers (organisational component (V): 1.29; content component (V): 1.11). Greatest variance (in percentiles) is observed in the social component in real situations (R): 50% of the respondent scores ranging from 1.5 to 1.67 with interquartile range 3.17 and mean squared distance 1.693. Lowest variance is observed in the social component in ideal pedagogical situations (V): 50% of the respondent scores range from 1.22 to 2.67 (percentiles) with interquartile range as mean squared distance (standard deviation) 1.414. Relevant statistical data are visually outlined in quartile diagrams (Figure 1). The obtained factor evaluations range from -3 to 3. Negative indicator values suggest that

the respondents endorse the formal approach while positive values imply endorsement of the holistic one. Absolute indicator values demonstrate the stability of the respondents' position. Values close to 0 mean the respondent has no principal standpoint relative to the issue in question (Figure 1).

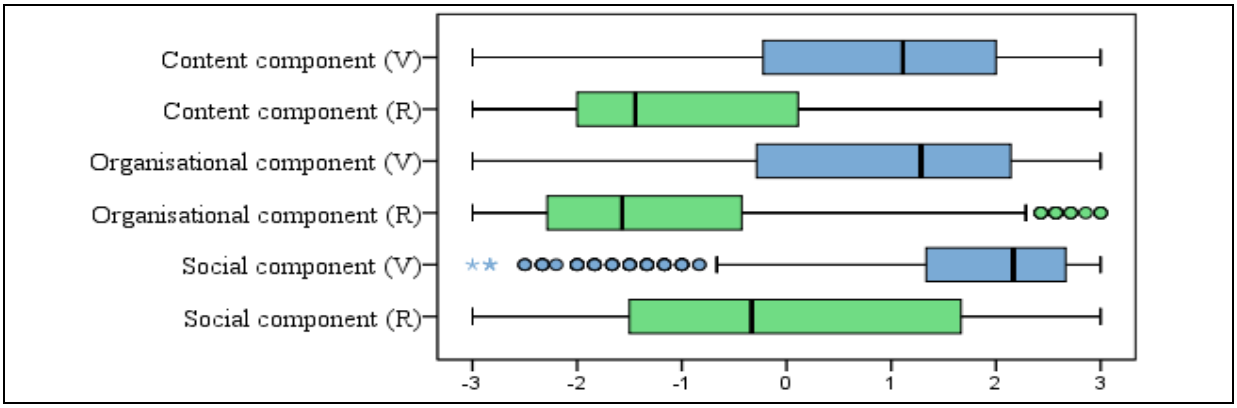

Figure 1. Quartile diagrams that illustrate the respondents' attitude towards the selected approach

Mean values can also be laid out in a diagram (Figure 2).

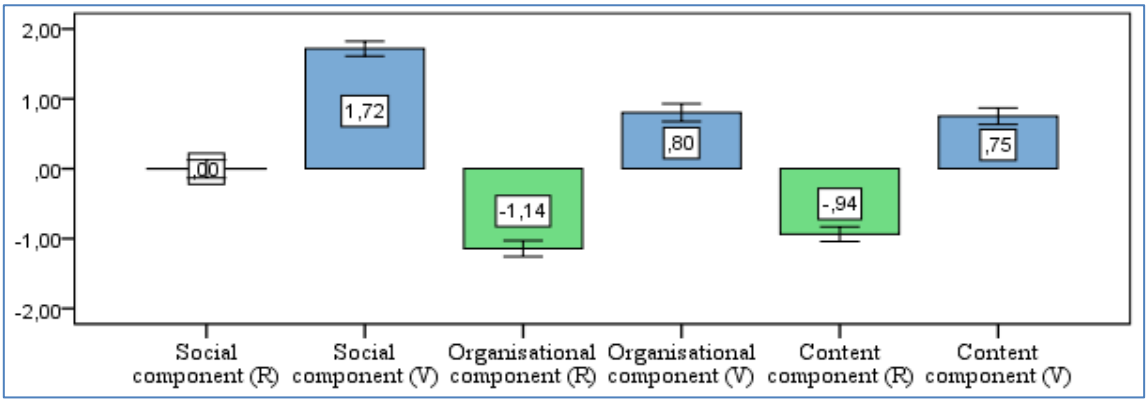

Figure 2. Mean component values that illustrate the respondents' attitude towards the selected approach

Mean values in Figure 2 denote primary education teachers' attitude towards strategic approaches to the teaching and learning process in real and ideal pedagogical situations. These data imply that in real pedagogical situations (R) the majority choose the formal approach to facilitating the acquisition of subject matter whereas in ideal pedagogical situations (V) the holistic approach is preferred: the social component (R): 0.00, the social component (V): 1.72; the organisational component (R): -1.14, the organisational component (V): 0.80; the content component (R): 0.94, the content component (V): 0.75.Comparative factor analysis of findings from primary education teachers' survey according to such factors as the organisational component and the social component suggests that the distribution of the teachers' views in real pedagogical situations (R) inclines towards the formal approach whereas in ideal pedagogical situations (V) sways towards the holistic approach. Meanwhile, primary education teachers' views on such a factor as the social component emerge as an exception in that the views appear almost equally distributed between the formal and the holistic approach in both real (R) and ideal (V) pedagogical situations.

Thus, the present study explored primary education teachers' views on the application of formal and holistic approaches in real and ideal pedagogical situations as well as identified three constituent components of the teaching and learning process: social component, organisational component and content component.

Conclusions

Analysis of germane theoretical literature suggests that holistic approach to shaping the content of primary education integrates relevant insights from sustainable development movement, systemic

approach, integrated approach and humanistic approach, and features the following tenets and fundamental conditions:

- respecting the learner's freedom or autonomy in the process of education;
- supporting the principles of sustainable development: a learner-centred, humanistic and democratic approach;
- acknowledgement and comprehension of all facets of sustainable development: economical, ecological, social and cultural;
- respecting the learner's individual experience in five dimensions of education that correspond to the five dimensions of learner's natural development: intellectual, emotional or affective, physical, social, aesthetic and spiritual;
- integration of different school subjects, thematic teaching, simultaneous focus on different areas rather than exclusive concern for isolated aspects;
- systems-oriented teaching and learning, seeking connections and regularities;
- learner development that subsumes facilitation of critical thinking, action competence, personal attitudes and values.

Meanwhile, empirical findings suggest that holistic education addresses the development of an individual as a whole and as a part of a community, including their physical, social moral, aesthetic, creative, spiritual, intellectual and professional development. Formal education however, is discovered to be cognitively-oriented and neglecting other essential dimensions of human life.

The study suggests that planning and implementation of the teaching and learning process that is shaped according to the holistic approach requires evaluating not only the structure of teaching and learning, but also the process of its organisation. It means considering the learner as a fundamental component of the teaching and learning process and rethinking its interplay with other components such as the teacher and the subject matter. In other words, one should reflect on how to shape such teaching and learning process where learners acquire specific subject matter that has the potential to inspire qualitative change in learner development, support their growth and contribute to their personality formation. Thus, holistic approach emerges as concern for prevention of wholeness and facilitation of connectedness; as shaping and evaluating specific actions, knowledge and skills that are viewed in totality without imposing artificial divisions.

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The structural model of the pedagogy students' readiness for professional dctivities in the educational environment

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Abstract: The article deals with the structural model of the pedagogy students' readiness for professional activities in the educational environment. When developing the conception of pedagogy students' practice, educational ecology was chosen as the methodological basis. Educational ecology is one of the trends of human ecology: an integrative, interdisciplinary science trend of natural, social sciences, and the humanities that studies the development of a human being as an individual and/or social systems within the interaction with the multidimensional environment in its holistic perspective by ensuring the multi-aspect view on education. The structure of readiness for professional activities is formed of two basic components – psychological readiness and competence based readiness. A school needs educators, who: are aware of a teacher's mission under the changing circumstances nowadays; perform their teachers' duties in good faith; are creative teachers; set the requirements not only towards others, but are also self-rigorous; respect their colleagues, pupils, their parents and themselves in a modern school; are aware of their public accountability for the new generation's desire and ability to find its place in the life, for the destinies of their pupils in the future; are able to step beyond the borders of their profession and to look into at least nearest future, and to have good knowledge not only of their field, but also other spheres in order they could discuss the wholeness of an object, a phenomenon with their pupils. During the lifetime an individual integrates into different kinds of environment. However, a human being is not only an element of environment, but he also interacts with it. For the pedagogy student those are the higher education institutions and school environments, where the readiness for professional activities is developed. Therefore the pedagogical practice is particularly significant within the process of the prospective teacher's professional development. During this practice the student learns to apply knowledge, acquired during theoretical studies, for the professional activities, within the process of professional development, developing his pedagogical skills, where the professional competence is of particular importance. During the pedagogical practice there is attitude formed towards the chosen profession; within the process of professional identification the affiliation to the educator's profession, the school as an educational environment is developed.

Key words: ecological approach, competence, model, readiness for professional activities.

Introduction

In the modern world an individual faces new and rapidly changing situations that require a complex approach to the dealing with problems, but this, in itself, sets the requirement to have new knowledge and skills. During the pedagogical practice the prospective teacher, still being a student of a higher education institution, faces a direct interaction with the environment of his professional activities. Therefore the pedagogical practice is particularly significant within the process of the prospective teacher's professional development. During this practice the student learns to apply knowledge, acquired during theoretical studies, for the professional activities, within the process of professional development, developing his pedagogical skills, where the professional competence is of particular importance. During the pedagogical practice there is attitude formed towards the chosen profession; within the process of professional identification the affiliation to the educator's profession, the school as an educational environment is developed.

In order the professional readiness of pedagogy students as prospective teachers would meet the modern requirements, it is necessary to ensure the teaching-learning environment, which is student-friendly, appropriate and facilitates their professional readiness. There have been studies performed for several years at the Institute of Education and Home Economics of the Latvia University of Agriculture; the studies are based on the ecological approach in education and are closely related to

the improvement and further development of the conception of pedagogical practice (Katane, Baltušīte, 2007; Katane, 2007b; Katane, Krugļija, 2009; Baltušīte, 2012; Baltušīte, 2013).

The aim of the article: to describe the developed *Structural Model of the Pedagogy Students' Readiness for Professional Activities in the Educational Environment* which could facilitate the development of pedagogy students' as prospective teachers' readiness for independent and responsible professional activities in the school environment.

Methodology

There are four conceptual approaches in our research. They are the following: *1) professional activity approach; 2) competency based approach; 3) structural approach; 4) ecological approach.*

● ***The Profesional Activity Approach.*** In our research there have been analysed and evaluated results of the theoretical research on the teacher's profession (Adey, Hewitt, 2004; Dauge, 1928; Students, 1998), activity (Argyris, Shön, 1978; Čehlova, 2002; Davidson, 1980; Vygotsky, 1981; Гальперин, 1985; Леонтьев,1982), the teacher's professional activity – pedagogical activities – structure, functions, roles (Giesecke, 1997; Johnson, 2000).

Job, profession is an important base for the perspective of an individual's life, his self-realization, self-expression in the context of lifetime activities. Professionalism – the totality of an individual's personal characterizations that is necessary for the successful pedagogical activities (Никитина, 2006; Никитина, Железнякова, 2002). Many scientists consider the teacher's profession to be an art (Dauge, 1928; Students, 1998).

● ***The Competency Based Approach.*** In the works of many scientists there have been substantiated several types of competences by classifying competences and by defining and substantiating one or several competences according to the problem under research. While analysing and evaluating scientific publications, there were identified the following *types of competences*: special, professional competence (Beck, Brűhwiller, 2007; Briede, 2009; Strode, 2010); methodological competence (Кузьмина, 1990); personality's competence (Bankauskienė, 2007; Briede, 2009); social or communicative competence (Briede, 2009; Зимняя, 2004); diagnostics competence (Nieke, 2002); psychological competence (Rutka, 2008; Кузьмина, 1990); cognitive competences (pupil's cognitive, research activities, reflection and learning skills) and functional competences (competences for: ICT use; creation of the developmental conditions of an organization; the planning and development of the content of subject; management of teaching-learning process) (Bankauskienė, 2007); emotional competence (Рейнолдс, 2003); ecological competence (Roga, 2010; Эрдынеева, Кадашникова, 2009); tolerance as a competence (Petere, 2011); meta-competences (Briede, 2009); cognitive, functional (work, teaching, social activities), individual (how to behave in a particular situation) and professional's ethics competence (Bankauskienė, 2007) .

Competence of ethics is included into the classifications of competences, given by many scientists (Bankauskienė, 2007; Briede, 2009; Giesecke, 1997).

K.O.Bauer (Bauer, 2005) emphasizes the significance of professional independence alongside with the didactic competence and an individual's professional development, where the individual is ready to rewrite his/her professional biography on an ongoing basis.

Competence of reflection is very important for the teacher's work (Briede, 2009; Kepaite, 2008; Nieke, 2002; Кузьмина, 1990).

●***The Structural Approach.*** Several scientists substantiate *readiness for professional activities from the structural aspect,* emphasizing several structural components: 1) cognitive component, 2) emotional component, 3) component of motivation. Cognitive component in the works of other scientists is defined also like the competency based component in the structure of readiness (Гилёва, 2000; Рахматуллина, 2006).

T. Tolkacheva (Толкачева, 2009) identifies two components in the structure of professional activities: 1) the component of motivation and values as the psychological aspect of readiness; 2) the content procedural component, based on the acquired competences.

I. Gorohovskaya (Гороховская, 2008) substantiates the prospective teacher's readiness for professional activities as: 1) personality's progress towards one's general and professional perfection, where particularly important are values based motives (the component of psychological readiness – authors' comment), and 2) the totality of integrative personality's qualities, characterized as an entirety of knowledge and skills, that becomes the basis for the development of competences. According to the scientist's point of view, competences manifest as the ability to operate during the process of professional activities with one's personal resources, including knowledge and skills, taking professional, responsible decisions (competency based readiness – authors' comment).

Scientist J. Tyagunova **(**Тягунова, 2008) has developed the structural model of a teacher's readiness for professional activities, identifying interrelated components: target-oriented, the motives of activities synthesizing component (psychological readiness – authors' comment), the component of the search for content and the component of the inner resources of innovative activities. Thereby he scientist emphasizes the competency based readiness for professional activities in her readiness structural model as well.

L. Subbotina (Субботина, 2011), on the basis of her theoretical research, also identifies two basic components in the structure of the readiness for professional activities of students as prospective specialists: 1) psychological readiness; 2) readiness for competent activities. In these components the scientist identifies even more detailed substructures, the description of which will be presented, when analyzing separately and substantiating psychological readiness and competency based readiness.

●***The Ecological Approach.*** The experience and its adequate self-evaluation, developed in the interaction with the surrounding environment, are of the same importance. We applied ecological approach during the development of the structural model of the teacher's readiness for professional activities. There are several scientists at the Institute of Education and Home Economics (the Latvia University of Agriculture) who substantiated ***ecological approach*** on education in their publications (Briede, Pēks, 1998; Briede, Pēks, 2011; Katane, 2005; Katane, 2007a; Katane, 2009; Katane, Baltušīte, 2007; Katane, Kalniņa, 2010; Katane, Krugļija, 2009; Katane, Laizane, 2012; Katane, Pēks, 2006 etc.).

We agree to the thought that has been emphasized in the works of V. H. Ittelson (Ittelson, 1969), S. Rubinstein (Рубиншейн, 2004), H. Steinbah and V. Yelensky (Штейнбах, Еленский, 2004**)** and in the works of other scientists, namely, that the question: *how does the environment influence a human being* should be modified a bit: *how does a human being perceive the surrounding environment?*

Paraphrasing the above mentioned idea about the school, the university lecturer and the schoolteacher, supervising the students' practical training, shall answer the following questions:

- *How does the student perceive the school environment?*
- *What does he know about the educational environment as multilevel, multicontextual and multifunctional?*
- *What are his attitudes towards the educational environment, including school*?
- *In what way does the pedagogy student's readiness for professional activities develop in the environmental system of education?*

The aim of the research: to work out and develop the structural model of a teacher's readiness for professional activities in the context of educational environment.

Research methods: the analysis and evaluation of scientific literature; the analysis and evaluation of different (European, Latvian) documents; reflection on experience.

Results and Discussion

As a result of theoretical research and reflection of personal experience, there was developed the structural model of prospective teacher's readiness for professional activities in the context of educational environment (Figure 1).

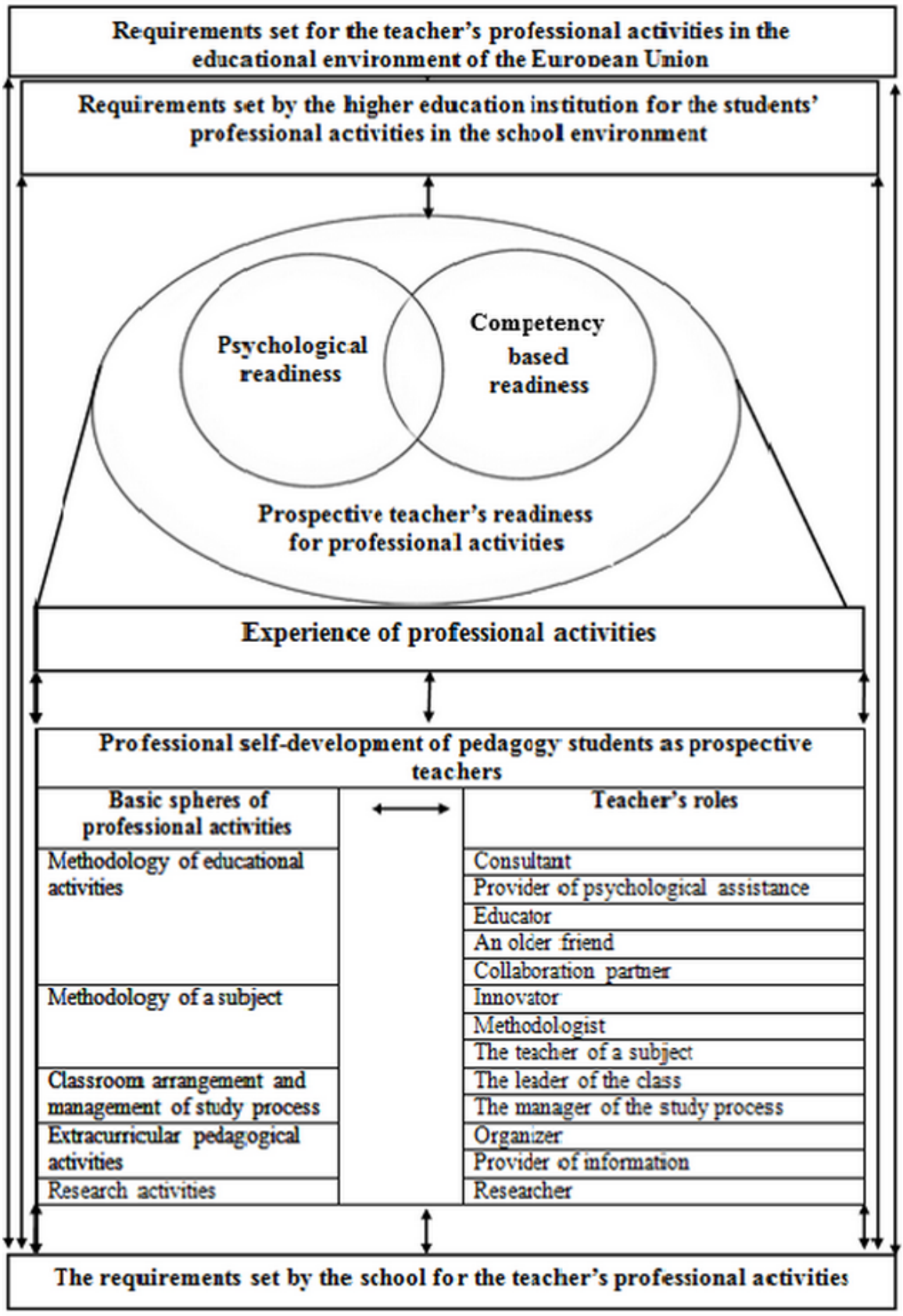

Figure 1.The Structural Model of the Prospective Teacher's Readiness for Professional Activities in the Context of Educational Environment (Authors' design)

There have been conclusions evaluated drawn by the eastern and western scientists, when substantiating the concepts of readiness for activities and readiness for professional activities (Baltušīte, 2012; Baltušīte, 2013; Katane, Baltušīte, 2007).

In our model the readiness of a prospective teacher for professional activities consists of two basic components (Figure 1): 1) *psychological readiness* that has been formulated in the model for the evaluation of pedagogy students' readiness for professional activities, developed by the authors, as ***I want*** (the core of the personality's progress – the motives); 2) *competency based readiness* – ***I can***. This component of readiness comprises *different competences forming the core of the structure of this readiness and* that are necessary for the responsible professional activities of the pedagogy student as a prospective teacher. The diverse competences existing in the structure of readiness develop and improve in close connection with many spheres of professional activities and teacher's roles.

Results of our theoretical research prove that in the scientific substantiations of readiness for professional activities given by different authors, it is possible to establish the tendency to identify two basic components: ***psychological readiness*** and ***competency based readiness.***

Our substantiation of ***psychological readiness for professional activities*** we based on the conclusions of authors, who consider motives as a core for the personality's progress (Reeve, 2001; Божович, 1997; Ильин, 2000; Леонтьев, 1982; Немов, 1995; Рубинштейн, 2004; Санжаева, 1997; Хачатрян, 2011; Цветкова, 2006 etc.).

For example, the emotional component and the component of motivation in the works of other authors represent the component of psychological readiness (Деркач, 2004; Крылов, 2005). Scientist E. Hachatryan (Хачатрян, 2011) identifies in the prospective teacher's readiness for professional activities the psychological readiness, based on the progress of personality and professional progress, including also professional development and improvement, as well as competency based readiness.

Irrespective of scientists' different approaches, it is possible to draw a conclusion that psychological readiness for professional activities is a complex formation, comprising several components. Psychological readiness for professional activities develops during the professional studies and determines the productivity of the prospective specialists' activities.

Performed research shows that *psychological readiness for professional activities is characterized as an integral formation, ensuring successful performance of professional activities in the particular context, where the leading role is attributed to motives, forming positive attitude towards the chosen profession.*

Psychological component is closely related to the competency based component. If there are competences, necessary for performing professional activities, and the prospective teacher has a desire to perform these activities, it is possible to speak about the readiness for professional activities.

The competency based readiness for professional activities has been substantiated by many authors, for example, I.Gorbatkina (Горбаткина, 2003), E. Hachatryan (Хачатрян, 2011), O. Isachenko (Исаченко, 2008), M. Yemec (Емец, 2011), I. Sitka (Ситка, 2011), L. Subbotina (Субботина, 2011), T. Tolkacheva (Толкачева, 2009) etc.

For example, several scientists emphasize the connection and complementarity in the readiness for professional activities and competency based readiness (Андриенко; 2000; Конюхова, 2002; etc.).

Having evaluated the substantiations of the structure of readiness for professional activities, given by many scientists, it is possible to draw a conclusion that all these models of readiness are united by the basic conclusion that ***the basis and/or core for the prospective teacher's readiness for professional activities are competences.***

There have been analyzed the conclusions of the following scientists, and the regulatory documents of Europe and Latvia (Andersone, 2009; Bankauskienė, 2007; Bauer, 2005; Briede, 2009; Common European Principles .. , 2005; Drexel, 2003; Grabovska, 2006; Huntly, 2008; *Latvijas ilgtspējīgas attīstības* .. , 2010; Latvijas Nacionālās attīstības .. , 2006; Latvijas Nacionālās attīstības .. , 2012)

Therefore *the competency based readiness* is defined as follows: competency based readiness is one of the basic components of readiness for professional activities that, according to its essence, is an integral formation of a personality's qualities, where the core of this entirety is formed by competences.

In the structure of competency based readiness, alongside with the central competences, it is important to identify also: the prospective teachers' developed self-regulation and self-control mechanism, where of particular significance is the following: volition, the ability to make a decision and undertake responsibility, the ability to evaluate adequately oneself and one's professional activities; ***creativity*** in the performance of the innovative professional activities. The prospective teachers' competency based readiness is not only an integral formation of a personality's qualities, but also the situation of resources and the start, before the beginning of professional activities. Competency based readiness for professional activities is also the result of the professional development of pedagogy students as prospective teachers during the study period.

The prospective teacher's competences form the main structural part (core) of the *competency based readiness for professional activities.*

Irrespective of different interpretations of the structural components of competence and the diversity of competences, necessary for the educator's professional activities that are described in the scientific literature, as a result of theoretical research there has been identified the tendency to relate the competence to the readiness for professional activities.

The structure of competency based readiness, alongside with the competences, comprises the mechanism of self-regulation and self-control, as well as creativity that is necessary for the teacher's creative, innovative professional activities. The prospective teachers' readiness for professional activities, including competences, develops and improves in the process of professional activities.

The prospective teacher's experience of professional activities develops through testing and improving one's ability regarding different spheres of a teacher's professional activities by performing different functions and acquiring different teacher's roles related to these functions (Figure 1).

Many spheres of a teacher's activities and also many roles and functions that pedagogy students shall acquire during the study period at the higher education institution determine the specificity of a teacher's professional activities (Figure 1, Figure 2).

On the basis of the results of theoretical research, as well as the standards of studies and a teacher's profession (2004) there were identified several *spheres of a teacher's professional activities*: methodology of a subject, methodology of educational activities, extracurricular pedagogical activities, research activities, professional development, arrangement and management.

Professional activities in all these spheres facilitate the professional development, and vice versa, because the professional development is like a basis for the diverse professional activities; at the same time the professional development takes place thanks to the diverse professional activities (Figure 2).

Having evaluated authors' theoretical conclusions and personal experience, we can say that in order to perform professional activities, the prospective teacher needs several competences that determine the development of his professional expertise on the whole. The diversity of the types of competences is closely related to the diversity of the spheres of professional activities.

Irrespective of the fact that the basic spheres of professional activities do not change, their content changes. The novelty is the fact that a teacher in any situation at school shall be able to combine competences representing different spheres according to the situation. Therefore pedagogy students, during their practical training, shall develop their competences for the activities in all basic spheres of a teacher's professional activities by acquiring several teacher's roles.

The concept of competence that has been introduced into the sphere of education shall be now attributed to the teacher and pupil's readiness to act under the modern conditions. This readiness, first of all, is ensured by general competences.

Within the framework of research, while substantiating *the structure of pedagogy students' readiness for professional activities*, the authors of this article defined the ***concept of competence*** as follows: *the competence is an integral entirety of knowledge, skills and experience, manifesting through the responsible independent activities, while respecting the specificity of particular environment and situation.*

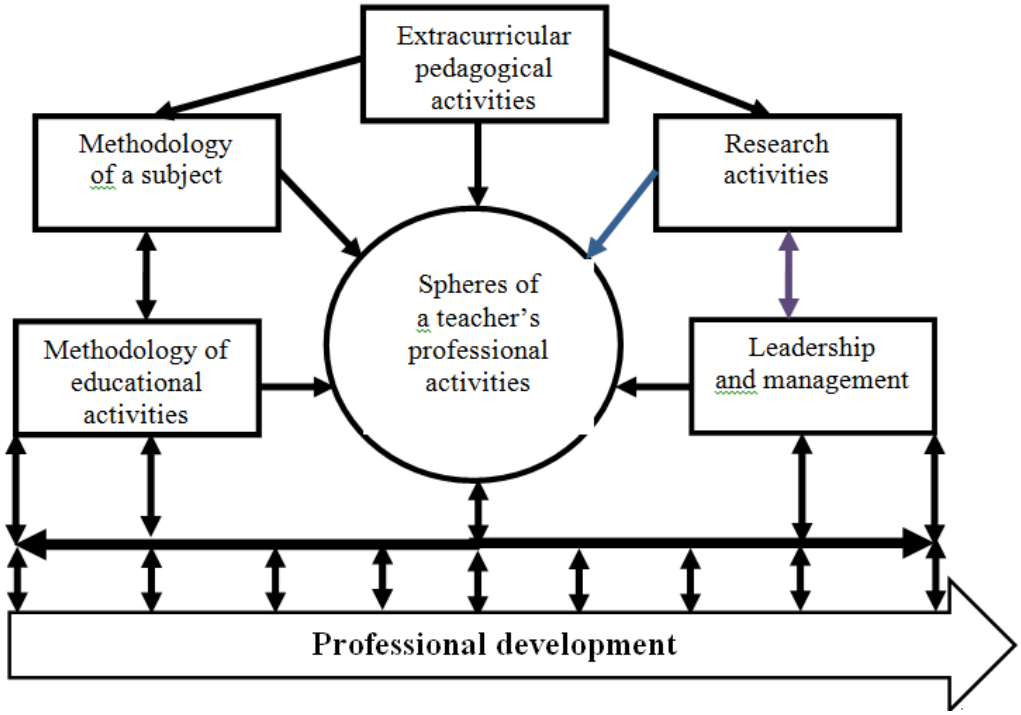

Figure 2. Spheres of a Teacher's Professional Activities (Authors' design)

Since there is no unanimity regarding the definitions and classification of the types of a teacher's competences, then within the framework of our research, on the basis of the developed substantiation of the spheres of a teacher's professional activities (Figure 2), the types of prospective teachers' competences and their definitions had been related to *the spheres of a teacher's professional activities: 1) methodological competence of educational activities; 2) methodological competence of a subject; 3) competence of extracurricular pedagogical activities; 4) research competence; 5) leadership and management competence; 6) competence of professional development.*

Having evaluated authors' theoretical conclusions and personal experience, we can say that *in order to perform professional activities, the prospective teacher needs several competences that determine the development of his professional expertise on the whole.* The diversity of the types of competences is closely related to the diversity of the spheres of professional activities.

All these competences are necessary for the pedagogy students as prospective teachers in order they could start their independent professional activities, including: 1) adapting to the school environment under the changing conditions; 2) accepting every pupil, while being aware of his/her developmental resources; 3) collaborating with the participants of educational process in the school environment and beyond it; 4) aligning the requirements of regulatory documents with the independent target-oriented creative activities; 5) performing activities in the real and virtual educational environment; 6) drawing the conclusion that the teacher performs the particular mission of his/her life and that the teacher's wisdom at present is relative in comparison to the pupil's wisdom, because, when the pupil would reach the teacher's age and would have amassed his/her own experience, the pupil could achieve better results than his/her teacher; 7) knowing of at least two foreign languages; 8) working in the multicultural environment; 9) working at all the levels of ecosystem; 10) continuing self-development and self-perfection.

Readiness for professional activities is based on the teacher's personal *experience of professional activities* (Figure 1) that has been amassed during the process of professional development within

several years. *The amassing of the experience of professional activities starts with the students' practical training in the school environment.*

The results of theoretical research show that readiness (both psychological and competency based readiness) for professional activities depends on different personality's qualities, forming the structures of the basic components (motives, attitudes, values, competences, self-organizational and self-control mechanism etc.) of readiness for professional activities and on the factors of educational environment that like the totality of internal factors or factors resulting from the personality and external or environmental factors influence an individual's professional activities.

As a result of theoretical research and reflection of personal experience, there was developed the structural model of a prospective teacher's readiness for professional activities in the context of educational environment (Figure 1).

Pedagogy students' readiness for professional development is influenced by both internal (resulting from the personality) factors and external or environmental factors, including requirements set for the school and the teacher by: 1) the European Union and national level educational environment and society; 2) the environment of a higher education institution; 3) the environment of a practical base – a school that has its specific pedagogical and cultural environment.

There are many and different factors of educational environment. Some of the environmental factors are the requirements set for the professional activities of teachers, including prospective teachers. Pedagogy students face the scientifically substantiated, experience based requirements set by the academic staff of higher education institution, and school mentors. But the teachers' professional activities in a modern school are influenced by the requirements set for the teacher's professional activities that exist in the national and European Union educational environment (Figure 1). Therefore academic staff of higher education institution shall be competent specialists themselves in their sphere and methodologically competent mentors.

Therefore in the structural model of a teacher's readiness for professional activities there are identified several contexts of educational environment, comprising the above mentioned requirements set for the teachers' professional activities in a form of directives (imperatives) – ***I need.***

- The educational environment of the European Union with its requirements for the teacher's professional activities.
- The educational environment of the higher education institution with the requirements set for the students' practical training in order they could perform professional activities in the school environment.
- The educational environment of the school and its local requirements set for the teacher's professional activities that mostly result from the specificity of the school environment, namely, from the strategy and aims of the sustainable development of school, the peculiarities of its cultural environment, the type and status of school, the formal and non-formal educational programs implemented at the school, the model of collaboration with the social partners, and many functions of the school, including participation in different projects.

It is essential that the requirements of external educational environment, as a result of interiorization, are accepted and transformed as internal motives of professional activities, thus there are harmonized and aligned personality's needs and motives with the aims of professional activities. At the same time the aims of professional self-development and the purposes of career development are also the motives of the teacher's professional activities.

Pedagogy student's readiness for professional activities is the precondition and also the result of professional self-development, therefore readiness for professional activities interacts with the professional self-development on an ongoing basis through the acquisition of different spheres of professional activities, educator's roles and functions resulting from them.

The structural model of a teacher's readiness for professional activities in the context of educational environment, developed by the authors of this article, became the basis for the

development experimental approbation in practice of the methodology for the self-evaluation of pedagogy students' readiness for professional activities.

Conclusions

In the teachers' education the concept *readiness for professional activities* has complex and diverse significance, comprising the diversity of an educator's roles and functions in the school. The facilitation of prospective specialists' readiness for professional activities during the study process at a higher education institution is one of the main directions of its activities. The content of concept *readiness for activities* changes according to the requirements set by the time and could be understood as self-realization in the creative activities, transfer of knowledge from one sphere to another, fast integration into the environment of a new place of work.

The prospective teacher's readiness for professional development consists of two basic components: 1) psychological readiness, and 2) competency based readiness. The emotional component and the component of motivation represent the component of psychological readiness. The motives are a core for the personality's progress. The competence as a structural part of the competency based readiness is an integral entirety of knowledge, skills and experience, manifesting through the responsible independent activities, while respecting the specificity of particular environment and situation. In order to perform professional activities, the prospective teacher needs several competences that determine the development of his professional expertise on the whole. The diversity of the types of competences is closely related to the diversity of the spheres of professional activities.

The readiness for professional activities is based on the teacher's personal *experience of professional activities* that has been amassed during the process of professional development within several years. *The amassing of the experience of professional activities starts with the students' practical training in the school environment.*

Pedagogy students' (prospective teachers') readiness for professional development is influenced by both internal (resulting from the personality) factors and external or environmental factors, including requirements set for the school and the teacher by: 1) the European Union and national level educational environment and society; 2) the environment of a higher education institution; 3) the environment of a practical base – a school that has its specific pedagogical and cultural environment.

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Autonomous English acquisition in blended e-studies for adults for sustainable development: quantitative research

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Abstract: The topicality of the research arises from broadening language environment to using the English language and insufficient using the possibilities of its acquisition in virtual learning environment. English acquisition in virtual learning environment depends less on time and place of learning what is particularly important for rural inhabitants. The aim of the study is to promote autonomous its acquisition by changing the vertical and horizontal hierarchy of values in the context of sutainable development. Traditionally stable forms of pedagogical process are inquired, but an unstable link of transformation of values in facilitated English acquisition in blended e-studies for adults is investigated in this trasdisciplinary research by the means of holistic approach, theoretical modelling and synergetic methodology. A questionnaire was used for collecting quantitative data about the respondent's readiness to learn English in the offered forms of organization of learning process in the classroom and virtual environment by proposed methods. Their attitude is seemed as an indicator of values on what their initial learning activity depends on. This research resulted in grouping the respondents according to their attitude towards the forms of organization of learning process. The attitude towards the methodological factors is different in each group. The respondent decission depends on his/her professional/ social role and the level of education. The attitude of the group of non-formal language learners is not homogenous and requires additional inquiry. The practical result of the research is the short form of the questionnaire for completing groups of EA programmes of non-formal education.

Keywords: stable/unstable form, learning environment, a holistic model, the hierarchy of values.

Introduction

Autonomous English acquisition (EA) in blended e-studies for adults is defined in this research as a structurally divisible functional holistic unstable form of learning process. The topicality of the research arises from broadening the language environment to using the English language and insufficient using of the possibilities of its acquisition in virtual learning environment. EA in virtual learning environment depends less on time and place of learning what is particularly important for rural inhabitants.

If the youth has already accepted e-studies, then the middle aged adults do not always accept them. This is the problem of the reasearch that arises from adults' experience of directed foreign language learning. As learner's attitude does not change by itself or change too slowly, then an unstable link of transformation of values is acquired in this research by the means of transdisciplinary scientific method - sinergetics. The learner's autonomy is analysed from a philosophical, pedagogical and mathematical perspective by the means of holistic approach, theoretical modelling and synergetic scientific methodology.

Generally it is used for investigation of open unstable and self-organisational systems where the system is a functionally undivisible and structurally divisibe whole. The facilitated EA in blended e-studies is an unstable form in this research. The study aims to promote autonomous its acquisition by changing the vertical and horizontal hierarchy of values. The object of the research is the process of learning of the English language in non-formal education. Its subject is autonomous EA in blended e-studies for adults.

The questionnaire is the method of the quantitative part of the research that results are presented in this article. The scale for measuring respondents' attitude was created in the previous qualitative part of the research (Bojāre, 2013). The tasks for quantitative research are the questioning of respondents, analysis of the results and adaptation of the scale for practical use.

Results of the research allow to group respondents into four groups on the base of their attitude towards proposed forms of organisation of learning process and learning methods. They show the vertical and horizontal hierarchy of values connected with acquisition of the English language; show dependence of decision making on respondents' social and professional role and on their level of education. The practical result of the quantitative research is the short form of the questionnaire what is recommended for completing groups in EA programmes of non-formal education.

Three groups are revealed by the decision making tree. Two groups prefer stable forms of learning process, but one group has uncertain opinion. This group is suitable for further inquiry devoted to SWOT analysis of inquired factors for scientifically grounded facilitation of transformation of horizontal hierarchy of values in the process of learning.

Methodology

Traditionally stable forms of pedagogical process are inquired. The directed learning and innovative virtual learning are considered as stable forms of pedagogical process in this research. Adults' involvement in any of them depends on their beliefs and readiness to action, and there is an unstable phase of transformation of values.

It is a facilitated autonomous EA in blended e-studies for adults what is investigated in this transdisciplinary research by the theoretical means of holistic approach and modelling. Synergetic scientific methodology is used for empirical research. It connects objective and subjective, quantitative and qualitative, unsustainable and sustainable development and education.

In general, using natural, economical, social and cultural capital for a better quality of life and saving of resources reflect the contrast between unsustainable and sustainable development. A methaphor of the lunar phases of the moon can be used for sinergetic illustration of relationship between unsustainable and sustainable education:

- the new Moon is a phase of economical/ technological or material investments in the system of education from outside environment; they include possibility of e-studies for better quality of learning and life what changes the vertical hierarchy of values; the Moon's light side, invisible from the Earth, contains horizontal cultural values of learning organization and learners' inside values releasing in social action;
- the first quarter Moon shows appearing actractors of these new cultural values;
- the full Moon is a phase of congruity between material and cultural values;
- the last quarter Moon is a phase of diminishing traditional values and development towards new qualitative changes in the developmental process of life, nature, society and consciousness.

Nowadays, a paradigm shift leads to facilitation learners to become creative and communicative learners, accomodated to radical autonomy in the perspective. Such creativity and autonomy is precondition not only of sustainable long term learning during one's life, but also for openess and meeting challenges of changes, creating new knowledge and acquisition unpredictable skills in the future. It follows that directed learning can be expanded to a limit and then starts restricting of learners'autonomy.

Unstable forms of upbringing were introduced by Bollnow (Больнов, 1999) and facilitated self-directed learning (Knowles, 1975) can be considered as unstable form of learning. So EA in blended e-studies for adults links traditional classroom and innovative technologically based and virtual learning environment. This form of learning process can be based on cognitive, social, social-cognitive and humanistic learning theories because e-learning can be integrated in any of them (Nichols, 2003). A holistic approach is the most appropriate as it includes an interaction between directed and self-directed learning values that leads to the evolution of learning process.

It follows from the general systems theory (von Bertalanffy, 1968) that a system is characterised by the interactions of its components and the nonlinearity of those interactions. Sinergetics and its methodology in education researches are based on the main properties of open systems: homeostatic

nature of its stable phase, self-organisation, nonlinearity, openness, emergence, instability, bifurcation – *„the moment when the system choses further way of development"* (Samkova, 2013, 283).

An individual and learning organisation are such systems because there is interchange with information and psychological energy. Information communication stimulates to action where the main role belongs to the computer and the internet. So communication is considered to be a system-forming mechanism (Gorbatiuk, 2013). According to *cross-sectional* (Walonick, 1993b**)** approach of the study of systems, the interaction of values (attractors) between two systems, the individual and institutional, and virtual learning environment leads to the evolution of the elements of the system.

A *holistic* approach is used to examine the individual's system as a complete functional unit with vertical and horizontal structural hierarchy of values. The structural division of values is based on the presence of cognitive, social and teaching element in the whole of the learning experience of the learning society where emotional presence is the part of social element (Garrison, Anderson, Archer 2000; Garrison, Anderson, 2003) or separate element (Campbell, Cleveland-Innes, 2005).

The social element is stressed in Birziņa's (Birziņa, 2012) research. It is expressed by learning in group in this research under the term of self-determined learning as an organisational form of learning process. Other vertical structural elements are defined by self-regulated learning (SRL) and self-directed learning (SDL) and show the paradigm shift from teaching to learning where the participation is particularly important in the circumstances of increasing role of autonomous learning in virtual learning environment.

A virtual environment has two roles. As a technologically facilitated learning environment it belongs to learning organisation, but, as the internet, it is a part of outside environment of the system. Sustainable development of this environment means saving the diversity of lingual environment for future generations. It is a need and a goal of sustainable development in the context of foreign language acquisition with paradigm shift from *multilinqualism to plurilinqualism* (Eiropas Padome, 2006, 13-14) and its value is a language tree.

Beside „ *large-scale multiple system intervention methods"* of organisational change for work quality has been shifted to *„the level of theorizing"* (Goodman,1982; cited in Walonick, 1993b) about organisational change. The theories propose a model of organisational change that examines inputs, transformational processes, and outputs (Walonick, 1993b). Inputs in education refer to the environmental learning resources. Transformation refers to the tasks, and the formal and informal system (organisational) components. Outputs include changes in both – individual and organisational, material and cultural.

The holistic system model of transformation of values for promoting autonomous EA in virtual learning environment is created in the frame of pedagogical perspective of the research. It includes transforming of vertical hierarchy of values by interaction between the learner and virtual environment. It is expressed by students' attitude towards responsibility for learning on the base of facilitated learning, learning in group and self-directed learning. The horizontal transformation is facilitated by the facilitator depending on initial level of methodological factors by input in the way of communication and action. The output is broadening of initial level of methodological factors to stable values and acceptance of the new experience of learning.

Results and discussion

The mathematical perspective of the research is expressed in the quantitative part of the research. It aims to determine the initial state of adult learners' attitude towards autonomous EA in blended e-studies based on their learning experience. Hipothetically it is assumed, that the possibility of transformation of values depends on their different readiness towards responsibility for their own learning and using different learning skills. Readiness itself is an unstable form of the inquiry because it represents the state of individual's dynamic system at that moment, but its significity is in getting the information for facilitation the transformation of values towards learners' autonomy by communication and action.

The empirical method of the research is questionnaire because *it provides a convenient way of gathering information from a target population* (Walonick, 1993a). This method is used for collecting quantitative data about respondent's readiness to learn English in offered forms of learning process, that include different levels of responsibility for learning (facilitator's, group's and learner's) in the classroom and virtual environment and using different learning strategies.

The Self-directed English acquisition readiness scale (SDEARS) in blended e-studies (Bojāre, 2012, 2013) was created on the base of the previous qualitative part of the research. It is a three level scale that includes a level of learning environment, the forms of learning process and learning methods. It is self-directed in the broad meaning of umbrella concept in the frame of humanistic paradigm, but the results of the research exceeded it. So it was changed to the paradigm of sustainable development in education and SDEA was replaced by autonomous EA.

Its validity depends on comparing of theoretically selected and practically obtained criteria with the European language portfolio for adults (Eiropas Padome, 2006). Its reliability depends on factoral analysis. The tasks for quantitative research are the questioning of respondents, analysis of the results and adaptation of the scale for practical use.

210 (N=210) respondents were questioned in Latvia. The base of the research were real, potential and exlearners of EA programmes in non-formal education. They were choosen by the princip of responsiveness. Learners of EA programmes, teachers, librarians and parents of schoolchildren took part in the questioning. They evalutioned their readiness in answering to the questions offered in the questionnaire. The questions corresponded to EA by facilitation of teacher, in group and independently in the classroom and in the same way virtually.

The respondents were informed that anonymity was guaranteed. Out of 210 respondents 186 were women and 24 were men. The respondents' age bracket was from 16 to 66 with average age – 42 and a half of respondents were older than 43 with average quadratic divergence – 11,64 years. The obtained data were statistically analysed by 22.0 version of SPSS *(Statistical Package for the Social Sciences)* programme.

The instrument has 306 indicators measured by 5-point Likert-type scale ranging from *strongly disagree* to *strongly agree*. Aggregated indices, that characterise respondents' attitude towards different learning methodological approaches realised by different ways of organisation of learning process, are obtained as arithmetical mean of appropriate indicators (FIJ (1,…,7) – the number of learning method, (J=1,…,6) – the form of organisation of learning process).

Seven factors are distinguished for factor analysis: personal factor, the factor of involvement, the factor of organisation, the factor of evaluation, the factor of knowledge, the factor of skills and the factor of development. For example, F1=(J2,J3,J46,J47,J48,J49,J50) – Personal factor (motivation, interest, emotions, responsibility, self-esteem).

Exploratory factor analysis was made for factoral analysis of the structure of the questionnaire and for selecting of the main components. It followed by Varimax rotation in the space of FIJ. Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalisation.

A number of high load variables were minimalised in orthogonal rotation for facilitation of factoral interpretation. Kaiser-Meyer-Olkin Measure of Sampling Adequacy – KMO is 0,894 what means the usefulness of factoral analysis of the structure of the questionnaire.

The factoral analysis allowed to find the structure of four factors distinguishing four forms of organisation of the learning process based on the organisational approach of facilitated self-regulated learning, self-determined learning in group, self- directed and holistic English acquisition - EA in virtual learning environment: K-SRL, G-self-determined and P-SDL in classroom environment and V-EA in virtual learning environment where joined j4, j5 and j6. It means that respondents percept virtual EA holistically without distinguishing separate structural elements in it. Summative dispersive percent, that could be explained by these factors, is 78,7%.

Reliability is an index that reflects congruence of obtained indices. The validity of Cronbach's Alpha ranges from 0,932 (K) to 0, 976 (V) and shows high level of congruence between separate points of SDEARS in blended e-studies for adults what means the congruence of distinguished factors.

The aggregated indices were obtained by summing of distinguished indices. The standartisation of indicators was done for better understanding of next interpretations. The standartised values are divided by normal rule with zero as an average and only dispersion. The standartised values of factors allow to classify respondents according to each factor according to their indices above or below the aproximite value.

A part of evaluation of FV and FP factors is joining and because of that they are not used in following analysis. Cronbach's Alpha coefficients and the coefficients of correlation the index with attributes characterises the methodological approaches and allow to reduce initially composed questionnaire with 51 items to 21 item. After that the amount of indicates in each atribute is three, but totally in the questionnaire – 126.

The factoral analysis in the selected space of attributes confirmed the previously obtained structure of four factors and, for example, the personal factor now is F1 = Mean (J47, J48, J49) (the correction of learning activity for reaching the goal; responsibility for own's learning process; positive emotions connected with acquisition the English language).

Two staged cluster analysis in the space of factors FV, FK, FG, FP allowed to divide respondents in four homogenous groups (Figure 1) with different attitude towards proposed organisational forms of learning process where

F_1 is K- self-regulated English acquisition (SREA) in the classroom;
F_2 is G- self-determined English acquisition in the classroom;
F_3 is P- self-directed English acquisition (SDEA) in the classroom;
F_456 is V- English acquisition in virtual learning environment.

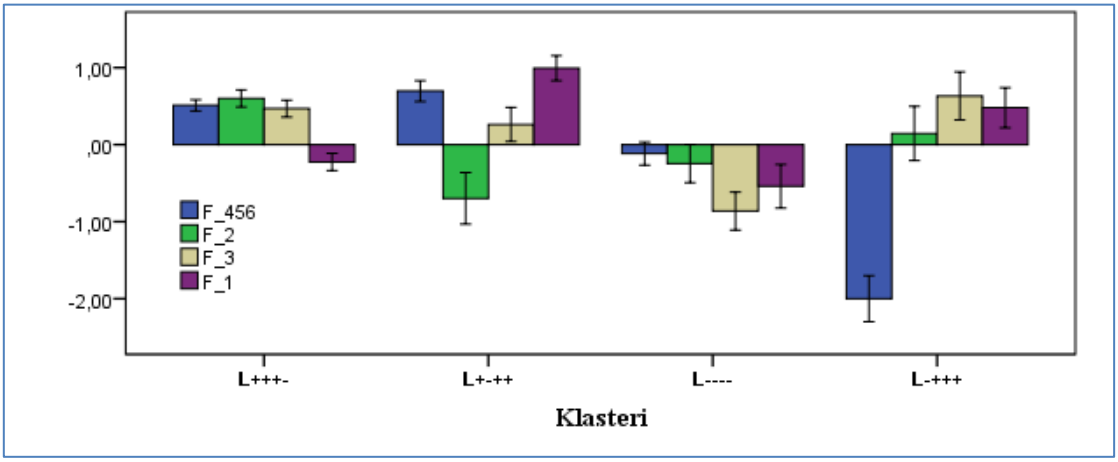

Figure 1. Average standartised values of factors in groups of respondents with different attitude towards proposed organisational forms of learning process.

L+++- group includes 70 respondents (33%) and has positive attitude towards all proposed forms of learning process, excluding SREA in the classroom. L+-++ group includes 41 respondent (20%) and characterises with the lowest evaluation of SDEA in the classroom than average in the whole. L---- group includes 71 respondent (34%) and characterises with lower evaluation of all proposed organisational forms of learning process. L-+++ group includes 28 respondents (13%) and characterises with the lowest evaluation of EA in virtual learning environment than average in the whole. The results of comparative one factor dispersion analysis of groups show that difference of clusters is statistically meaningful in all detached factors.

The social context of groups is analysed from the point of demographics, the language profficiency level and education, native language and the professional and social role. Men's priority is SREA in the classroom. Independent users of language are less loyal to EA in virtual learning environment and

more loyal to EA in the classroom with a facilitator or in group. It follows from their EA experience what is richer and more successful than basic users' of the English language.

The respondents with Latvian as native language are more loyal towards proposed forms of EA process, excluding SDEA in the classroom. The respondents with Russian as native language show the opposite attitude. It could be influenced by different mentality. Respondents' education level is similar in the first and third group. The highest difference in respondents' education level is in the second and fourth group. There are more respondents with professional education in the fourth group and they show negative attitude towards EA in virtual learning environment.

Librarians are widely presented in the first, second and third group, but less in the fourth group. It means that they are ready to acquint the English language virtually. The most abstained from virtual EA are the participants of EA programmes of non-formal education. Teachers are for SDEA in the classroom and against virtual EA. The parents of schoolchildren are also less loyal towards this form of organisation of learning process.

Table 1 shows that only education and professional belonging is meaningful for dividing respondents in groups.

Table 1

The results of χ^2 criteria in analysis of contextual influence on respondents' cluster dividing

	Cramer's V	**p**
Sex	0,070	0,796
Level of English proficiency	0,076	0,748
Native language	0,136	0,274
Education	0,186	0,010
Professional/ Social role	0,238	<0,001

The decision making tree shows that making decissions depends on respondent's professional and social role and education. Teachers (9%) are favourable to SREA in the classroom; librarians and parents of schoolchildren (64%) to SDEA, but the decision of the participants of EA programmes of non-formal education organised for unemployed (27%) depends on their educational level and the proficiency level of English.

The third group is not homogenous. Their next decision making step depends on their education. Two subgroups are made of the participants of EA programmes with professional education (N=13) and participants of EA programmes with general secondary, higher education and master's degree (N=44).

The first subgroup has positive attitude towards virtual EA what indicates about its techological skills and their using in different contexts. Only one participant has negative attitude towards all proposed forms of learning process. The second subgroup has negative attitude towards all proposed forms of learning process what indicates particularly negative experience of EA.

This subgroup divides in two more subgroups depending on their language proficiency level: basic users (N=32 or 15% of total amount of respondents) and independent users (N=12). 50% of the first subgroup do not believe in any of proposed EA forms. The second subgroup is less loyal towards EA in virtual lerning environment.

The future direction of the research is to make an action research for SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis of proposed factors in group of the participants of EA programmes of non-formal education for depending on their strengths and opportunities in facilitation of changes in horizontal hierarchy of values for promoting autonomous EA in virtual learning environment.

Conclusions

Respondents do not distinguish different forms of organisation of learning process in virtual English acquisition. It is associated with independent learning, from what the interest about learning strategies arises.

Only education and professional belonging is meaningful for dividing respondents in groups.

Decision making depends on respondents' social and professional role and on their level of education.

Three groups are revealed by the decision making tree. Two groups prefer stable forms of learning process, but one group has an uncertain opinion. This group is suitable for further inquiry devoted to SWOT analysis of inquired factors for scientifically grounded facilitation of transformation of values.

The reliability of the research is based on using two forms (long and short) of the self-directed (autonomous) EARS in blended e-studies for adults. The short form of it is recommended for practical using for comleting groups in EA programmes of non-formal education.

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Practice as professional development promoter of hospitality students

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Abstract: At the Institute of Education and Home Economics, Latvia University of Agriculture, already for several years researches are being carried out, which are based on ecological approach in education and are closely related to the improvement and further development of the conception for professional practice. The aim of the research carried out was to give a scientific background for professional practice as a contributor to competitiveness of hospitality professionals from the point of view of pedagogy science, as well as to carry out a pilot-research in order to find out, analyse and evaluate the point of view of hospitality students on the organization and efficiency of professional practice. The aim of the article is to publish the results of the researches carried out.

Keywords: practice, competitiveness, hospitality students' competitiveness.

Introduction

The issue of hospitality specialists` competitiveness relates to the new specialists` transition from the process of acquiring higher professional education to the professional activity, which has its own demands and requirements. The main law of the open market "supply creates its own demand" efficiently works in the hospitality sector, where the employers` demands towards the institutions of higher education are constantly rising, i.e. "supply has to correspond to the demand", therefore they have to train competitive specialists – managers, who will easily align with the contemporary world labour market.

In Latvia it is possible to acquire professions connected with the tourism industry at 61 educational institutions; among them are institutions of higher education, colleges, and institutions of professional education (Valsts izglītības..., 2012). Consequently, a large number of hospitality specialists graduate from the Latvian institutions of higher education annually, and all of them desire to find a highly-paid job. It is a well-known fact that the labour market in the tourism industry is very active as workplaces in this branch are in great demand; always a large number of applicants apply for the announced job vacancies while the number of the latter is limited, which is proved by the quantitative discrepancy between the number of the unemployed and the vacancies in the professions of the branch, e.g., in December, 2012 there were 1106 managers/ directors (including the managers of hospitality and tourism enterprises) while only 49 vacancies were announced (Labklājības ministrija..., 2012). Consequently, not only specialists but also institutions of higher education face a competition for these desired vacancies. Among employers` main requirements for graduates is work experience, which has been gained during the study process and professional practices at university. It is just during the practice in the professional environment that students demonstrate their readiness for professional activity and strengthen their choice to become a competitive hospitality specialist. The authors of this paper are of the opinion that at the present time professional practices at universities are gaining priority in the study process, which confirms the topicality of the research. The efficiency, content, forms and methods of the professional practice as well as its sequence at all levels affects the professional qualification of the managers of hospitality enterprises and professional development possibilities of students as competitive specialists.

At the Institute of Education and Home Economics of the Latvia University of Agriculture researches which are based on ecological approach in education and are closely related to the improvement and further development of the conception of professional practice are being carried out already for several years. The aim of the research was to conduct a pilot research on the basis of the results of theoretical researches as a methodological base in order to find out, analyse and evaluate the hospitality students` point of view on the organization and efficiency of professional practice. The aim of the article is to publicize the results of the conducted researches. The methods of research: 1) theoretical research –

study, analysis and evaluation of scientific literature and the corresponding documents; reflection of authors` personal experience; 2) empirical research: students` survey and data processing methods for the statement of descriptive statistics.

Methodology

Theoretically methodological base of professional development

A country which is thinking about its future, i.e. it has a clear strategically economic and social position, constantly has to rise its employees` competitiveness as it relates to the economic competitiveness of the country on the whole. By not making massive investments in the training of every future specialist enterprises will not be able to hold the advantage of competitiveness, low-qualified employees, in turn, will be placed before the fact that they lack any prospect of self-development (Портер, 1993).

The competitiveness of universities is determined by training good quality specialists; it activates the issue of their competitiveness in the labour market, i.e. the demand for new specialists and their employment, as competitiveness being one the main qualities of a working person is demanded in the environment of a competitive market.

The new specialists` professional parameters do not always meet employers` demands. 91.4% entrepreneurs point out that taking on employees in the sector of tourism a very important criteria is employees` professional skills, among other important criteria they have indicated performance of work skills (84.9% respondents) and foreign language skills (75.5%), the latter being especially important because of the branch specificity (Valsts izglītības..., 2012). As an essential factor has been mentioned the specialists` professional experience, which the new specialists usually lack, consequently, it is difficult for them to be competitive in the labour market (Митина, 2003; Емельянова, 2008; Кирилюк, 2008;). By a successful organization of the professional practice it is possible both to introduce students with the environment of the professional activity and to apply the acquired theoretical knowledge in practice. The rapid development of the new technologies in the sector also make universities cooperate more closely with employers, whose financial possibilities to introduce the new technologies are larger than those of the educational institutions (Shortt, 1992). This is why employers have to be aware that the new specialist will be able to start his /her professional activity after an additional training or after an efficient professional practice, during which he /she will be introduced with the enterprise and the specifics of its work.

On condition that employers become involved in the study process, considerable improvement of the study quality as well as the professional development of students as future hospitality specialists is possible.

The professional development is the central category of mutual interaction between a person and his/her profession, in psychology it is viewed as the fundamental process of a human being’s changes. The professional development is usually identified with progressive changes in the person: maturity, development, self-development, and self-perfection (Зеер, 2006). The professional development is a continuous process, which does not start with the choice of a profession and does not end with completing studies at a higher professional school. It is a process which is continuing throughout all professional life, and which includes regular chances and experience to plan and perform one’s growth in the profession systematically (Walling, Lewis, 2000; Cochran-Smith, Lytle, 2001).

In the scientific literature of philosophy and sociology the highest stage of professional development is professionalism – the highest degree of mastery of one's activity (Игнатов, 2002).

In labour psychology professionalism is understood not only as a high level of knowledge, skills and abilities but also as a definite systemic organization of a human being's psyche and consciousness (Климов, 1996).

Akmeology, where a personality and its activity form a unified wholeness, in its turn views professionalism as a system consisting of several subsystems: a dialectic unity of a personality’s professionalism and professionalism of activity (Деркач, Зазыкин, 2003).

The Russian scientist V. Bodrov (Бодров, 2001) has worked out a model of professional development. As the scientist notes, there are the following levels of professional development: professional knowledge; professional experience; professional competence; professional usefulness; professionalism. During studies, hospitality students` professional development is in the stage of formation, namely, during this process a student acquires a totality of the required professional activity and moral virtues (Вершиловский, 1983) , as well their professional self-determination takes place (Кудрявцев, 1981). It is just during the studies at university that by applying a set of methods of social influence conditions for the formation of an individual's value judgments, outlook, professionally important knowledge, skills, attitudes and qualities have to be created (Strode, 2010).

Ecological approach in the mentoring of practice

To let the hospitality students` professional development take place it is essential to take into account a human being's ecology aspects, which emphasize interaction and changes between a human being and the environment (Taylor, 1934; Visvander, 1986; Bronfenbrenner, 1996). Bronfenbrenner (Bronfenbrenner, 2005) writes: „The ecology of human development is the scientific study of the progressive, mutual accommodation, throughout the life course, between an active, growing human being and the changing properties of the immediate settings in which the developing person lives, as this process is affected by the relations between these settings, and by the larger contexts in which the settings are embedded". According to the ecological approach in interaction between a human being (a hospitality student) and the environment (the setting of professional activity), the human being is the active agent who promotes his/her development. Therefore it is vital to provide an answer to the question how a student, the future hospitality specialist, perceives the environment of professional activity. Reflection of experience shows that the outer environmental setting of hospitality enterprises is one of the key factors in the choice of the future profession. The beautiful interiors, informal atmosphere attract the young people. Nevertheless, the setting of professional activity (inner) with its long working hours, low salary and emotional tension often make the youth become frustrated. The scientists I. Katane, R. Baltushite (Baltušīte, 2012; Katane, Baltušīte, 2007) point out that it is important to shift the emphasis from the future specialists` professional training to their readiness for professional activity, including psychological readness. Owing to the lack of psychological readiness, it is often the case that students are not able to prove their professional competences during practical training. Both the teaching staff at universities and practice mentors at universities and in enterprises has to explain students their new social role – the formation of a hospitality specialist during professional practice. Students have to think and act ecologically – they have to orientate themselves to I WITHIN THE ENVIRONMENT OF PROFESSIONAL ACTIVITY and not I AND THE ENVIRONMENT OF PROFESSIONAL ACTIVITY (Katane, 2007b). A student has to learn to control himself/herself, overcome the encountered difficulties within the setting of professional activity. Self-regulation must be intentional, perceived and goal-oriented. By paraphrasing the founder of the Club of Rome Aurellio Peccei: the future specialist is faced with a dilemma – under the conditions of the changing environment he/she either has to change as a personality (..) or he/she is doomed to disappear from the Earth (Katane, 2010). Being aware of the fact that in the forthcoming years the hospitality specialists` work space is going to expand, i.e. it will not be within the boundaries of one country but several ones, the future hospitality specialists have to change their thinking, which is one of the functions of ecological approach in education (Katane, 2007a), and practice mentors play an important role in this process.

Empirical Research

For the purposes of enhancement of the organization of hospitality students` practice at the Latvia University of Agriculture there was conducted an empirical pilot research to examine the present situation. A questionnaire was designed on the base of the methodology of the research carried out by scientists T. Lam and L. Ching (Lam, Ching 2007) of the Hong Kong Polytechnic University, by adapting and modifying both the criteria for assessment of the practice and their analysis.

The research was conducted from May 2012 until March 2013. The questionnaire consisted of 27 questions on the Likert scale. On the basis of the proportion of positive responses ranking was made according to which year a student is in.

The research base included: 1) the Institute of Education and Home Economics of the Latvia University of Agriculture (theoretical research); 2) the Department of Nutrition of the Faculty of Food Technology at the Latvia University of Agriculture (empirical research). In the research participated second - year students (n=50), third - year students (n=38), fourth - year students (n=27) of the study programme "Catering and Hotel Management" in the study – year 2011/2012. The questionnaire was completed by 115 students 2 months after the end of the practice. The aim of the empirical research was to find out, analyse and evaluate hospitality students` point of view on the organization and efficiency of professional practices.

Results and discussion

Study and professional practices at the university improve the knowledge gained in the continuous process of hospitality training. Each step of the study and professional practice is the last one in the corresponding training stage of the study course and it serves as the basis for a student's transition to a new level of professional development. In the organization of the practice such aspects as continuity and sequence (consistency) in the preparation of various stages in the continuous training system of hospitality have been taken into consideration.

By ranking students` responses to the questions included in the questionnaire (Table 1) it was found out that there was a concordance of opinions on several issues, namely, students from all courses were of the opinion that practice will be useful for their CV (in this response the results of second - year students indicated rank 1, but third - year and fourth - year students – rank 2) and that during practice it is possible to learn about their strengths and weaknesses, here the ranks of responses were as follows – responses of second - year students indicated rank 2 but third - year and fourth - year students – rank 1. A remarkable consonance was among students also as regards the statement that practice develops interest in the hospitality profession on the whole - R_4[1]=second – year, R_5=third-year, R_1=fourth-year.

Table 1

Students` Assessment of Professional Practice

Criteria of practice assessment	Second-year		Third-year		Fourth-year	
	Proportion of positive assessment, %	Rank	Proportion of positive assessment, %	Rank	Proportion of positive assessment, %	Rank
Competitive payment for practice	19.35	26	5.00	26	27.03	24
Practice will be useful for my CV	46.81	1	44.78	2	47.06	1
Comprehensive practice programme	39.29	16	36.21	19	38.64	19
During practice I will get reference (feedback) from enterprise managers	37.50	19	43.08	6	47.06	1
Good relationships among peers	39.76	14	37.29	17	46.00	7
Vast work experience	41.18	9	40.32	12	34.15	22

[1] Here and henceforth – R- rank, R_3- the response ranks in the 3rd place

Criteria of practice assessment	Second-year		Third-year		Fourth-year	
	Proportion of positive assessment, (%)	Rank	Proportion of positive assessment, (%)	Rank	Proportion of positive assessment, (%)	Rank
Interesting and challenging work	39.29	16	41.27	9	43.75	13
Good work environment	39.76	14	44.78	2	47.06	1
Sufficient support from the enterprise practice supervisor	40.48	11	38.33	15	42.55	17
Professional supervisor	41.86	8	41.27	9	44.90	11
Competitive extra pay (e.g. for overtime)	12.28	27	2.63	27	25.00	25
Good co-operation between the university and enterprise	2424	25	11.90	25	18.18	27
Good possibility for self-development	44.44	5	43.08	6	44.90	11
Recognition and praise from the enterprise managers	40.48	11	39.34	13	43.75	13
Feeling of being a team member	40.24	13	38.33	15	46.00	7
Enterprise practice supervisor is responsive in solving work problems	43.82	7	41.27	9	43.75	13
High degree of independence (autonomy)	26.47	24	27.45	22	25.00	25
Reasonable amount of work	41.18	9	39.34	13	47.06	1
Promotes innovative ideas	28.57	23	28.85	21	38.64	19
Permanent work in shifts	35.06	20	30.19	20	40.00	18
It is possible to apply theoretical knowledge in practice	45.56	3	44.78	2	46.00	7
Practice develops interest in the hospitality profession	45.26	4	44.12	5	47.06	1
Chance to get a job in the enterprise	38.55	18	37.29	17	46.00	7
High team spirit in the group	30.56	22	25.49	23	38.64	19
It is possible to find out own strengths and weaknesses	45.65	2	47.14	1	47.06	1
It is possible to develop technical skills (e.g. work with mechanical equipment)	44.44	5	43.08	6	43.48	16
Is involved in supervision tasks	35.06	20	21.28	24	30.77	23

Students` responses also showed similarity in their opinion on the questions about the lack of competitiveness as regards payment for practice (R_{26}=second-year and third-year, R_{24}=fourth-year),

namely, students are not paid during their practice, which in our opinion is understandable and acceptable as during practice students have to learn and gain a deeper insight into the work of hospitality enterprises as much as possible and not work in one position. Students` answers to the question on versatility of work experience testify that such things happen – fourth-year students` answers rank in the 22nd place, third-year – in the 12th but second- year – in the 9th place. However, gaining of the vast work experience is not always interesting and challenging (R_{13} - fourth-year, R_{16}- second-year, R_9 – third-year). During the second-year in the Hotel Practice students master specific features mostly of the work of chambermaids, cleaners as well as receptionists. There is no direct contact with a client, whereas in the third-year in the Restaurant Practice students often get acquainted with the waiter's/ waitress`s work, they communicate with guests, solve various problems, which seems interesting and challenging. Although, when we speak about extra pay when working overtime employers would have to pay (R_{27}= second-year and third-year, R_{25}= fourth-year).

Also researchers S.N.Shirobokov and R.C.Roe (Shirobokov, Roe, 2005) emphasize the number of interdisciplines acquired by students as an indicator of quality for a successful professional practice and point out that it shortens the adaptation time in the enterprise. Students` transition to the real work environment is not easy, the relationships among peers are quite tense - R_{14} = second -year, R_{17}= third -year, R_7 = fourth –year; the support of a supervisor in the enterprise is quite often not felt - R_{11} = second -year, R_{15}= third -year, R_{17} = fourth –year, also the team spirit is low - R_{22} = second -year, R_{23}= third -year, R_{19} = fourth –year.

According to the students` point of view the practice programmes must be improved in all professional practices – the responses were ranked as follows: R_{19} = second –year and fourth –year, R_{16}= third – year, as well as the co-operation between the university and practice enterprises has to be promoted - R_{25} = second –year and third -year, R_{27} = fourth –year.

Opinion is divided on the issue whether theoretical knowledge can be applied in practice – the fourth – year students were more critical R_7 = fourth –year, R_3 = second -year, R_2= third –year. It can be explained with a fact that in the fourth –year students write a bachelor's paper. Fourth –year students also more disagree than agree (R_{16} = fourth –year) to the statement that during practice it is possible to develop technical skills (e.g. serve guests at the table, lay beds, clean rooms, work with mechanical equipment, work with special hospitality programmes, e.g. R-Keeper system of restaurant management and record-keeping). The other students admit that they have improved these skills, namely, R_5 = second -year, R_6= third –year. Also there was a difference of opinion as to the issue about the possibility of self-development, where the fourth –year students were the most critical - R_{11} = fourth –year, R_5 = second -year, R_6= third –year, although as regards the issue about possibilities in future to get job in the practice enterprise the fourth –year students are the most convinced - R_7 = fourth –year, R_{18} = second -year, R_{17}= third –year. The obtained results can be explained by the fact that when students are in their fourth-year after having acquired all four year theoretical courses and professional practices their self-confidence rises, and they evaluate their competitiveness as relatively high. A specialist's competitiveness is an aggregate of his/her personal and professional qualities, including various competences, based on the experience acquired during the life time, including the process of training.

The study programme „Catering and Hotel Management" trains future managers of hospitality enterprises, for this reason great attention in the professional practice programmes is devoted to various issues about management. As regards the issue about students` engagement in supervision tasks, mostly negative responses were received - $R_{20}$ = second –year, $R_{24}$ = third –year, $R_{23}$= fourth – year. Students` creativity was not appreciated in enterprises either - R_{23} = second –year, R_{21} = third – year, R_{19}= fourth –year. This is vitally important in the fourth-year Management practice, where an emphasis is placed on various supervision tasks. As students have evaluated practice supervisors in enterprises as being professionals R_8 = second –year, R_9 = third –year, R_{11}= fourth –year, the university practice supervisors have to explain the enterprise practice supervisors the aims and tasks of each practice; as well the students` degree of independence after their adaptation in the practice enterprise should be raised - R_{24} = second –year, R_{22} = third –year, R_{25}= fourth –year.

Scientists McMahon and Quinn (McMahon, Quinn, 1995) define practice as "work experience under supervision", which differs from work in the hospitality sector as it is performed in solitude. In fact, this supervision has to be such that a student could feel autonomous but in cases of uncertainty or problems could apply for help.

In the authors` opinion, it is possible to organize a professional practice of good quality by organizing Practice Vacancies Fair, when representatives from enterprises would go to universities and inform about practice vacancies, university practice supervisors would draw attention to the practice aims and tasks but students would choose the most appropriate practice enterprises.

There can conflicts arise between the parties involved in the organization of professional practices (directly and indirectly) as they have a different vision of the benefits of cooperation, they have different needs and expectancy (Davies, 1990); this can lower the quality of professional practices, namely, it can cause students` unwillingness to work in the hospitality sector (Wariszak, 1999). In order to find out how the assessments of students about practice match in 27 evaluation criteria of the questionnaire, the secondary processing was done, using Kendall's W Test, SPSS 21 software programme. To sum up Kendall's Coefficient of Concordance (W=0.856) approaches more „1" than „0", $\chi 2=66.77 > \chi 2_{0.05;\ 27} = 40.11$, but p-value=.000<α=0.05, meaning that there is statistically important concordance among all students.

Conclusions

- A specialist's competitiveness is an aggregate of his/her personal and professional qualities, including various competences, based on the experience acquired during the life time, including the process of training.
- On condition that employers become involved in the study process, considerable improvement of the study quality as well as the professional development of students as future hospitality specialists is possible. A professional practice of good quality can be accomplished by organizing Practice Vacancies Fair.
- Kendall's coefficient of concordance W=0.871 approaches more „1" than „0", meaning that there is concordance among all students in the evaluation of practice.

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Mentoring as an interaction system for the facilitation of the prospective teachers' readiness to integrate into the school environment

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Abstract: The sustainable development of today's society can be promoted by providing the educational sustainability. The education of prospective teachers should be based on ecological approach, which ensures the ecological perspective and an opportunity for students to develop their readiness to integrate into the school environment. The main aim of the author's research is to substantiate mentoring as an interaction system for the facilitation of the prospective teachers' readiness to integrate into the school environment. The author of this article offers the results of her theoretical research: substantiation of mentoring importance in teacher education, substantiation of mentors' roles and functions, substantiation of ecological approach in teacher education. Ecological approach in *teacher education* facilitates the formation of friendly attitude towards a school as an educational environment. Mentoring provides the prospective teacher's readiness to the professional activity and ability to successful integration in various types of school environment, considering their specificity. The author applied the following research methods: experience reflection, studying, analysing and evaluating of scientific literature.

Keywords: ecological approach, mentoring, readiness to integrate into the school environment

Introduction

The sustainable development of today's society can be promoted by providing the educational sustainability. Nowadays the problem of the preserving and sustainable development of balanced and diverse cultural environment and educational environment has become more and more topical. The author's opinion is that ecological approach provides a new perspective for the teachers' education in order to find the solution of this problem. The education of prospective teachers should be based on ecological approach, which ensures the ecological perspective and an opportunity for students to develop their readiness to integrate into the school environment. On the basis of ecological approach there are new conceptions, models for the teachers' education, and the positive experience of higher educational establishments obtained regarding the professional preparation of new teachers.

The process of integration is successful only if both parties involved (the prospective teacher and the school) are ready for it. The educational process can be successful and fruitful only if the school environment is open and inclusive and the teacher is ready to perform his/her professional duties.

The process of integration is implemented on the basis of the following principles of school activities: communication and an individual as a value; the defining of the goals of activities; different levels/stages of openness; diversity, complexity; changes; preservation and transformation; ethics and laws (Grabovska, 2006).

Nowadays the rapid changes of social and cultural values take place; the self-evaluation of a personality, the freedom of self-expression and self-realization are becoming the priorities. A teacher's role in the education becomes more and more important within the process of the modernization of education, as well as it is possible to observe the increase of the requirements set for the teacher's personality, social and professional position both in the school environment and outside it.

The main aim of the author's research is to substantiate the mentoring as an interaction system for the facilitation of the prospective teachers' readiness to integrate into the school environment.

Methodology

Modern scientists point out that the society gradually transforms from the industrial into the post industrial one (the society of information). The priorities gradually change for the spiritual and humanistic education (Косолапова, 2007). This, in its turn, will facilitate the identification of the aims of the prospective teachers' professional activities. The process of educational changes influences the image of a modern teacher: a modern teacher is a researcher, educator, counsellor, assistant, advisor etc.

It is very important for the prospective teacher to develop the readiness to integrate into any school environment, which, in its turn, depends on the interaction of the orientation, competencies and self-realization (self-organization, self-control, volition) of the prospective teacher's personality (See Fig.1). A very important precondition for the prospective teacher's readiness to integrate into the school environment is the *orientation of the teacher's personality* (these are mostly the psychological factors). The teacher's *professional orientation* results from *the orientation of the teacher's personality* and develops under the influence of personality's motives. The prospective teacher's *motives* are is the totality of his/her *aims, attitudes, needs, values and interests*.

The teacher's competencies, namely, the ecological competence, are an integral part of the teacher's readiness to integrate into the school environment. *Ecological competence* provides teacher's readiness for the professional activity and ability to successful integration into various types of school cultural environment, considering their specificity. The educator's ecological competence is based on the holistic insight into the interchange of personality and environment, and the factors influencing it. The educator's ecological competence is characterized by motivation, determination, the totality of psychological condition that ensures the prospective teacher's independent activities within the context of particular environment by using its resources (Katane, 2007; Katane, Krugļija, Roga, 2009; Krugļija, 2011). Teacher's ecological competence is an integrated totality of knowledge, skills and attitudes towards the interaction of a human being and environment, the interrelationship of the structures of ecological systems that ensures the readiness and ability to successfully integrate into and to start the professional activities in the various types of school cultural environment, taking into consideration their specificity. Teacher's *ecological competence* is based on a holistic understanding of personal and environmental interaction and factors influencing this interaction.

Self-organization, self-control and volition are very important factors facilitating for the teacher's readiness to integrate. The interaction of all these factors develops the prospective teacher's readiness not only to integrate into the school environment, but it also facilitates the professional performance of teacher's duties.

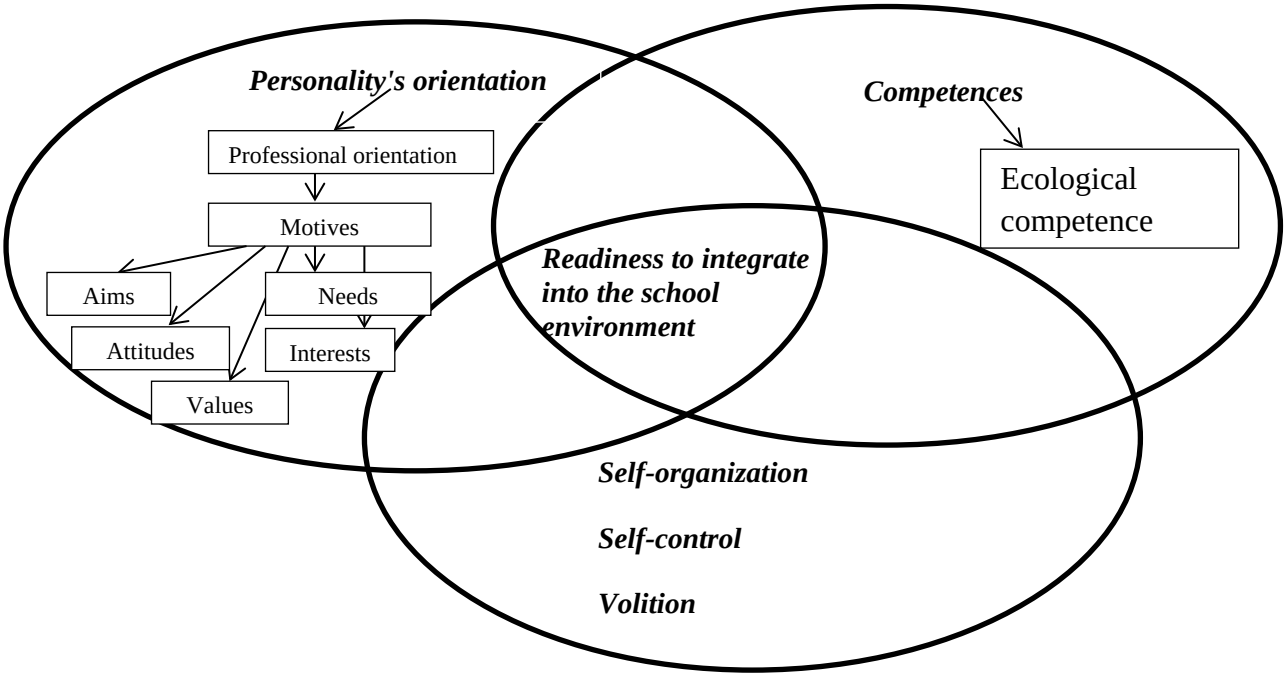

Figure1. Factors Influencing Teacher's Readiness (Author's design)

Due to the change of the values of pedagogical education, the existential projecting of the values of teacher's personality – self-cognition, reflection, creativity etc. - becomes important. Therefore not only the acquisition of knowledge is important for the teachers' education, including during the pedagogical practice, but the transformation of the sphere of prospective teacher's motivation, which, in its turn, facilitates the teacher's creative self-realization in the profession (Белл, 1999).

The author applied the following research methods: experience reflection; studying, analysing and evaluating of scientific literature.

Results and discussion

During the pedagogical practice it is very important to have *the successful collaboration of the school mentor, the prospective teacher and the university mentor,* which, in its turn, facilitates the successful integration of the student as the prospective teacher into the school environment. When starting the pedagogical practice at a school, it is important to respect the peculiarities of student's perception, thinking and values orientation in relation to the school as an environment, and at the same time to perform the ecological education of the student. The students must learn to think according to the new, social role to be acquired during the pedagogical practice – ***an educator***. They must clearly understand the educator's tasks and functions, the range of which nowadays has significantly broadened within the context of sustainable development. The ecological approach within the teachers' education facilitates the development of friendly attitudes towards school as an educational environment (Katane, 2007). The ecological approach in the teachers' education, including also during the professional practice, facilitates the successful integration of prospective teachers into the school environment.

If at the school there has been developed the system of mentoring for the students that under go practical training in order to use this system to provide support and diverse collaboration, then there have been created the necessary conditions for the achievement of the formal objectives of students' professional development (the official requirements set for the practical training) and also for the achievement of the student's aims and objectives set by the student himself to be achieved during the practical training. In this case the school could be really named an open, supporting and overtness confirming environment. (Baltušīte, 2013; Katane, Krugļija, 2009).

Prospective teachers' education is focused on, that student knowledges and skills quality mastering and their application during the practice gives to them opportunity quickly and successfully integrate into the varied environment of Latvian schools during pedagogical practice (study process) and after graduation (independent pedagogical activities). (Katane, Krugļija, 2009)

The prospective teacher's education is oriented towards the qualitative acquisition and application of knowledge and skills by students during practice; the collaboration developed with the practice base schools would enable the students after the graduation of university to integrate into the diverse school environment quickly and successfully. Successfully organized practice and competent supervisors of practice are the significant preconditions in order the education of qualified teachers would be not only effective, but also that the prospective specialists would be aware the topicality of their profession. Insufficient collaboration between the higher education institutions and practice base schools could become an obstacle for ensuring students with the qualitative process of practice under the supervision of competent university lecturers and school mentors. Therefore it is important that the following basic conditions are implemented during this interaction process (Strode, 2007):

- the practice shall be implemented in close collaboration between the school and higher education institution, in order it would be supervised by correspondingly educated mentor, who can assume the roles of an observer, an organizer, an advisor and a trustee;
- the students as a prospective teacher, who undergoes practice by competent practice supervisors, shall acquire qualitative knowledge, skills and abilities, because they will increase the level of self-confidence and after the graduation of higher education institution will enable to integrate into the diverse school environment more successfully.

Mentoring, the essence of which is the development of a support system, in order the student as a prospective teacher would be ensured the qualitative process of practice, is an innovation within the framework of the organization of modern pedagogical practice process.

Mentoring in Latvia develops as a support system for ensuring the qualitative study practice. The movement of mentoring started in Latvia in 1999, but mentoring as a system started to develop in 2002, when British Council started in Latvia the project "On the Harmonized and Effective Colloboration between Pedagogical Higher Education Institutions and Schools concerning Teachers' Education". The aim is to prepare professional supervisors of students' practice at schools – mentors who would help the prospective teachers to integrate into and to be welcomed in their professional environment.

In January 2005 by the support of the Ministry of Education and Science and British Council there were 13 mentors prepared for the further education of mentors in Latvia. Their task is the creation of the mentors'educational system by involving in it the teachers of other subjects. It is believed that the mentoring system will facilitate the qualitative study practice, as well as the stability of new teachers coming to work at schools (Konstantinova, Rivža, 2007).

Mentoring is the provision of assistance to a student or a new teacher in order to ensure their development and enable them to integrate into their professional environment.

Mentoring is the process of knowledge transfer implemented by experienced mentors and the individuals who adopt mentors' experience. The relationship of mentoring is based on the mentor's knowledge and experience that enables the person adopting the experience to consider his/her possibilities, resources and to facilitate their application for dealing with a particular problem or achieving the goal.

Due to different application of mentoring, nowadays nobody has managed to develop a single definition of mentoring. However, having summarized different explanations of the concept of mentoring, we can identify such uniform understanding of the concept of mentoring: the relationship of mentoring develops between an experienced person (a mentor), who agrees to provide assistance and support to another person (an individual who adopts the mentor's experience), who has less experience, with the aim to facilitate the development and success of this individual. Such mentoring relationship should develop in the environment filled with mutual trust and respect; the regular interaction of involved parties is fruitful (Bland, Taylorl, 2009).

Unlike to other types of knowledge transfer, in the mentoring the prospective teacher, first of all, is responsible for the study process. The mentor has no right to try to change the prospective teacher's views or to transfer his/her skills directly to the prospective teacher. The mentor may suggest, supervise, assist and ask. The mentor's main task is to establish good relationships. The mentor does not provide the solution for a problem, but by means of discussions assists in finding the right path for dealing with the problem.

Mentoring is characterized as the process of studies and development of both parties, which is an important contribution of own time and energy by both mentor and new teacher. The mentoring is the analysis, evaluation and defining of further development of both parties.

Prospective teachers' education is focused on the aim that the students' knowledge and skills qualitative mastering and their application, the collaboration developed with the places of practice and the potential employers, would provide the students with an opportunity quickly and successfully to integrate into the labour market.

A school nowadays needs a professionally competent, independently thinking, hardworking, and decisive teacher. However, the analysis of research carried out concerning the school performance and social pedagogical studies shows that even high level of professional readiness does not guarantee the quick and easy professional adaptation of a new teacher, his/her integration into the school environment.

The new teacher's integration into the field of professional activities is accompanied by high level of emotional stress that requires the mobilization of the teacher's inner resources. The introduction of a flexible mentoring system will help to solve this problem; it will help to optimize the process of the new teacher's professional development, to facilitate the self-development, self-realization and self-education. In this system there is reflected the new teacher's need to receive the assistance from an experienced teacher, who is ready to provide practical and theoretical assistance and it facilitate the new teacher's professional competence (Тоффлер, 2001).

In modern pedagogy the mentoring is identified by means of terms: "tutoring" and "mentoring". Tutoring is another experience, another educational system. A tutor – the observer of students, in English – a private teacher (a teacher who carries out homeschooling), an educator. Mentoring is a social institution that performs the process of transferring and facilitating the social experience, a form of the continuity of generations. Besides, mentoring is one the most effective forms of professional adaptation that facilitates the development of new teachers' professional competences and their readiness to integrate into the diverse school environment (Allen, Eby, 2007; Daloz, 1986).

The mentor's task is to help the new teacher to self-realize, to develop his/her own personality qualities, communicative and management skills. The mentor should possess professional, communicative skills of high level, as well as he/she should be respected among teachers, pupils and pupils' parents.

Since mentoring is a bilateral process, then the basic condition for its efficiency is the mentor's readiness to undertake the responsibility for the facilitation of the new teacher's professional development. The mentor should facilitate the identification of the new teacher's professional potential; the mentor should encourage the teacher to participate in the activities of pedagogical collective; the mentor should facilitate the broadening of the new teacher's cultural and professional vision, as well as the development of his/her creative abilities and professional skills. The mentor should facilitate the new teacher's self-education and self-development.

When starting the professional activities, a new teacher feels the necessity for the assistance. Therefore the mentor should pay the new teacher's attention (Akopova, 2004) to: the requirements set regarding the organization of study process; the requirements set regarding the filling out the school documentation; the forms and methods used for the organization of pupils' extracurricular classes; the development and use of educational aids.

There should be the assistance provided in the following sphere: theoretical and practical skills of pedagogical performance (preparation, conducting and analysis of classes; study forms, methods and techniques etc.); the programme of professional self-development; self-education; innovative tendencies in modern pedagogy and education (Akopova, 2004).

The mentoring is a continuous dialogue, the interpersonal communication. Therefore the mentor, when working with a new teacher, should apply effective performance forms: business and role games; group work; analysis of situations; self-actualization, which, in its turn, develops the business communication skills; the ability to make decisions; to substantiate one's point of view.

The mentor, when educating a teacher, should apply the approach of non-formal education: I learn by doing; I do through learning; the facilitation of the development of new teachers' social activities; the promoting of the development of objective self-analysis.

In comparison to the traditional forms of mentors' activities (discussions, consultations, visiting classes), the new and modern methods are more efficient: psychological trainings, creative workshops, psychological-pedagogical games, discussions together with pupils and their parents, the transfer of older generation teachers' experience to the new teachers etc. It is these methods that facilitate the integration of new teachers into the school environment. A new teacher feels more confident and finds that he/she has chosen the right profession. As a result, the new teachers' professional skills improve (Манузина, 2011).

In order to facilitate the development of new teachers' professional skills, the mentors together with the teachers may develop the new specialist's portfolio. It enables to keep track of the dynamics of

new teachers' professional development. The portfolio enables the mentor to avoid the formality, to chose the methods and forms to be applied purposefully and systematically, to evaluate the new teachers' professional development adequately.

The mentoring is organized according to the 'step by step' principle that comprises the formation and development of new teacher's functional and personality components (the projecting, organizational, constructive, and analytical one). Therefore the mentor's activities should be carried out in 3 stages (See Table 1) (Круглова**,** 2009):

- stage 1 – adaptation stage.; the mentor determines the new teacher's duties and powers, imperfections regarding the new teacher's skills and abilities in order to develop a programme for the successful adaptation;
- stage 2 – basic stage (the projecting one); the mentor develops and implements the teacher's adaptation programme, corrects the teacher's professional skills (if necessary), helps to elaborate the self-development programme;
- stage 3 – evaluation stage; the mentor evaluates the level of new teacher's professional competence, identifies the level of readiness for pedagogical activities.

Table 1

Organization of Mentoring *(Круглова, 2009)*

	Stages		
	Adaptation	Projecting	Evaluation
Tasks of	To determine the development of professional properties; to develop a programme for the new teacher's professional adaptation;	To facilitate the new teacher's need to project his/her professional development, the improvement of knowledge, skills and abilities	To facilitate the development of the new teacher's reflection on his/her performance, the skill to evaluate critically his/her own professional establishment and developmental process, to manage independently own professional development
Forms of activites	Individual	Individual, collective	Individual, collective, group
Techniques, methods	Diagnostics, visiting a new teacher's lessons, organizing of self-analysis; facilitating of all forms of independence and activities within the study process; formation of self-organizational skills. Methods: reproductive, observation, survey, discussions	Self-education, planning of methodological work, identifying of an individual style of performance, the development of "a portfolio" Methods: Informative, problem situation, inversion, observation, survey, discussions	Pedagogical reflection, conferences, analysis of visited lessons, the development of a new teacher's creative potential, facilitating of the development of the motivation of innovative performance Methods: Pedagogical workshops, problem situations, reflection

The research performed at the New Specialists' Mentoring Centre of Moscow Educational Institutions (Круглова, 2009) proved the purposefulness of the step by step principle. The research results show that the mentoring process reflects the new teacher's development from the reproductive level up to the innovative level of pedagogical activities.

The mentoring should facilitate the prospective teachers' need for self-perfection; it should promote his/her professional and individual development.

School environment should offer to the student as a prospective teacher: 1) permanent work opportunities, 2) an opportunity to take responsibility for their decisions and actions, 3) an opportunity to solve independently the problem-situations and problem-tasks, during the solution of which there is developed the prospective teachers' ability of decision-making, accountability, critical thinking and professional skills; 4) an opportunity to analyze, evaluate and adopt best pedagogical experience; 5) an opportunity to obtain competent, considerate and correct analysis of his/her pedagogical activities, as well as advice, suggestions for the further activities, taking into account student's opinion, without creating any obstacles for a prospective teacher's initiative and creativity in his/her pedagogical work; 6) an opportunity to analyze and evaluate both prospective teacher's own and school teachers' experience. This would facilitate the professional development of prospective teachers, including formation and development of different competences. At the same time the integration of the prospective teacher into the school environment depends also on his/her readiness to: 1) become the competent subject of a school as an interaction system, 2) respect the peculiarities of the cultural environment of a school and local community, while performing teacher's professional activities (Katane, Krugļija, 2009).

The prospective teachers' *professional activities* and *integration into the school environment* significantly depends on (Krugļija, 2008):

- their *professional adaptation* and *integration into the school environment*; it is influenced by their views on school. Such views were formed not only as a result of knowledge obtained at the higher educational establishment, but also on the basis of pedagogical experience, gathered during their lives, including study periods;
- teachers' motivation to work at school;
- the peculiarities of the social environment and cultural environment of school and local community;
- real living conditions and life perspectives, desire to have favorable living conditions.

Conclusions

The prospective teacher should be ready to integrate into any type of school environment, which, in its turn, depends on the interaction between the orientation of prospective teacher's personality, his/her competences and self-realization (self-organization, self-control, volitions). The interaction of all these factors develops the prospective teacher's readiness not only to integrate into the school environment, but it also facilitates the professional performance of his/her professional duties.

During the pedagogical practice it is very important to have *the successful collaboration between the school mentor, the prospective teacher and the university mentor,* that, in its turn, facilitates the successful integration of the student as a prospective teacher into the school environment.

The essence of mentoring is the development of a support system in order to ensure the qualitative process of practice for the student as a prospective teacher.

The mentoring is the provision of assistance to a student or a new teacher in order to ensure his/her development and to enable him/her to integrate into his/her professional environment.

The organization of mentoring has the 'step by step' nature that comprises the formation and development of the new teacher's functional and personality components (the projective, organizing, constructive, and analytical). Therefore the mentor should carry out his activities according to 3 stages: adaptation, projection, evaluation. The results of research show that the mentoring process reflects the teacher's development from the reproductive level up to the innovative level of pedagogical activities.

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Ecological perspective in analysis and evaluation of specificity of distance education environment

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Abstract: The development of a human being takes place in the interaction with his/her life environment. Educational environment, including distance education environment, is particularly important for the facilitation of the sustainability of all society and the development of each individual. Ecological paradigm becomes more and more topical in modern education. This paradigm ensures the perspective in the research and sustainable development of distance education environment. The authors of the article base their research on the ecological approach, where an educational institution is studied as the distance education environment, analysing and evaluating its qualities and functions principles. The aim of the article: basing on the ecological approach to analyse and evaluate advantages and disadvantages of distance education as specificity of distance education environment. The advantages of distance education, first, are connected to the provision of education's individualization and accessibility as: there are no geographical limits or state borders for distance education. It is accessible in any place where there is Internet access; distance education is possible in any time of the day, time limits for distance education are flexible (except the dates of examination that have been previously set and the time allotted for an online test), distance education has no limits of age, the target audience of distance education is very varied throughout the whole life. The disadvantages of distance education are connected with high costs that occur developing and maintaining e-environment for distance education, the operation of technologies and provision of Internet access, as well as limited opportunities for socialisation in distance education environment.

Keywords: Advantages and Disadvantages, Distance Education Environment, Ecological Approach.

Introduction

One of the main aims for the modern education is to facilitate the sustainability of *information society*, therefore an important feature that highlights differences in the education of 20th and 21st century is the variety of information and communication technologies (ICT) and the expansion of their application in the education.

The development of information and communication technologies caused far-reaching consequences in human life and activities and also seriously influenced education, providing wide perspective for the development of distance education environment (Simonson, Schlosser, 1995).

The experience shows that there has been rich experience amassed abroad regarding distance education not only in the field of comprehensive and academic education, but also in the field of professional education. In Latvia, at present, there exists experience mostly regarding the development and implementation of the offer of distance education in the field of comprehensive and academic education. Unfortunately, the issue of distance education is still controversial in the environment of vocational/professional education in Latvia, because there exist stereotypes in relation to the opportunities of acquiring professional competences in the distance education environment. The authors believe that further development of distance education environment in Latvia will solve the existing problems and contradictions also in the field of vocational/professional education. Therefore it was very necessary to research specificity distance education environment.

The aim of the article: based on the ecological approach in education, to analyze and evaluate the advantages and disadvantages of distance education environment.

Methodology

The development of a human being occurs interacting with the surrounding environment. The environment of education has a paramount importance for the facilitation of the society's sustainability un the development of each individual, thus the *ecological paradigm* has become topical in the research of education, including distance education.

For research, analyze and evaluate information on the history of development of distance education, the authors of the article so far carried out research in different directions (Katane, Katans, Vāvere, 2012a; Katane, Katans, Vāvere 2012b; Katane, Kristovska, Katans, 2013): 1) the ideas of humanization and democratization of education in the history of educational ideas, including the origin of the idea of lifelong learning and distance education as means for education accessibility, 2) the open school, open education and the humanistic targeted, open educational environment concepts, 3) the origin and history of the distance learning/distance education development; 4) ecological approach in the research of distance education environment.

In order to uncover the specific features of distance education environment and to provide the grounds for it, the authors of the article have based their research on the ***ecological approach***.

Nowadays (in the beginning of the 21st century) ecological approach regarding to education, including distance education, was scientifically justified in several publications (for example, Frielick, 2004; McCalla, 2004; Normak, Pata, Kaipainen, 2012; Shaw., Chacon, 2010; Smith, 2011; Sterling, 2003 etc.).

One of approaches demonstrating ecological approach in the educational ecology is to develop a classification of environmental components and contexts that would enable the research and description of the distance education environment as a multidimensional and multifunctional environment.

Several authors distinguish *information environment* in their classification of environment (Katane, 2007). The experience of the authors leads to a finding that ***the information environment of distance education*** encompasses all kinds of information that is necessary for the distance education, as well as a process of information exchange where both teaching staff/faculty and pupils/students are involved. The accessibility and exchange of information in any place and anytime is a significant feature of distance education (Katane, Kristovska, Katans, 2013).

The accessibility of information environment is provided by means of ICT, thus the information environment is closely related to the technological environment which can ensure e-learning (studies). Providing the grounds for e-learning several scientists point out ***the technological environment*** (Chee Meng, Werner 2005; Praude, Beļčikovs 2001). Description of specific features characterising the information environment and technological environment is closely connected with such concepts as ***means of communication, media*** that include all modern means of mass media: television, film, video, radio, photography, advertisement, newspapers and magazines, recorded music, computer games and Internet.

Media are the films, pictures, and Internet sites etc., which are offered by different means of communication. Some of these media are applied in media based education in order to diversify the ways of learning and to expand the range of sources that provide education, first, making them more accessible for those who are studying by means of the Internet. The use of media facilitates learning only when media are appropriate to the content of education; there is a definite link between the applied e-learning method and the media. Electronic media can be divided into analogous and digital media. Analogous media have lost their importance if they can be used in the modern educational process at all. Digital media, on the other hand, can be more versatile, flexible in their application, especially if used in combination with the Internet (Ivanova, Kristovska, Slaidiņš, 1999; Slaidiņš, 2005).

The concept e-learning encompasses the historical development. "*Until the introduction of the term **e-learning** in 1995 several terms were used instead of it: in the beginning **Internet based training**, and a little bit later-**Web-based learning**, thus explaining that learning can take place both on the Internet*

and Intranet. Then followed the term ***Online learning*** *and eventually adopting the* ***E-learning****, accepting the wide usage of abbreviation "e" during the "dot com" boom. The appearance of "e-" enabled the industry to attract millions of dollars from investors that were ready to invest their financial resources in any field starting with this magical letter*." (Slaidiņš, 2005, 4).

Thus the term ***e-environment*** took an important place in the educational and pedagogical terminology. Nowadays *e-environment* is one of basic components or contexts characterizing distance education.

Having accomplished the theoretical research we have identified three main contexts of distance education environment: ***1) information environment, 2) technological environment, 3) e-environment.***

The contexts of distance education (technological environment, information environment and e-environment) are closely interrelated, complementing each other. In relation to all three contexts the specific feature of distance educational environment is uncovered by the key concept ***e-learning (e-studies)***. There are several definitions for the term *e-learning*. Some definitions interpret e-learning extremely narrowly, identifying them with online learning, while others on the contrary define a very wide scope of application.

For example, Latvian scientists (Ivanova, Kristovska, Slaidiņš, 1999; Slaidiņš, 2005) write that the concept ***e-learning*** involves both formal and nonformal processes of learning, virtual groups and events, using a variety of electronical equipment, wireless and mobile studies: Internet, intranet, extranet, CD-ROM, video and audio records, TV, mobile telephones, notebooks, tablets etc. Sometimes also knowledge management is considered to be a form of e-learning.

R. Zemsky and W. Massy (cited in Bullen, Janes, 2007) have provided a division of several *e-learning* categories. *E-learning as distance education*: study courses, programmes, that are fully or partially carried out by means of the Internet. *E-learning as learning using electronic means*: electronic teaching and learning using electronic means. Such learning can be applied not only in distance education, using the Internet, but also in lessons of traditional full time studies. *E-learning as the software or environment of learning provision*: software that is used to organise and manage teaching and learning; these are learning management systems, for example, BlackBoard, Moodle etc. In these e-environment systems the mutual interaction of pupils/students, teachers and study resources takes place, including access to teaching aids, books and methodical materials of the course. Experience of article authors and the accomplished research suggest that in distance education it especially important to design and maintain such e-environment system.

Ecological approach provides a wide perspective for the research of specific features characterizing the educational environment, where the education environment, including distance education environment, is understood as (Katane, 2005; Katane, 2007; Katane, Kristovska, Katans, 2013): 1) multilevel environmental system, therefore it is possible to study the environment from the structural, evolutionary and functional point of view; 2) a multicomponent/multicontextual and multifunctional environmental system. ***On the basis of the ecological approach in education, several features and functioning principles of education environment as ecological system can be distinguished, analysed, and assessed.***

Providing the grounds for specific qualities of distance education, the analysis and comparison of the environmental context are emphasized in the article. The following ***methods of research*** were applied in the theoretical study (2011-2013): 1) the analysis and assessment of scientific literature and its content; 2) reflections on experience shared by the authors of the research.

Results of Research

The Analysis and Evaluation of Distance Education Environment: Advantages and Disadvantages

Distance Education has been introduced as an innovative form of education. Nowadays it is of great importance for the whole Latvia education system and particularly in adult education.

The introduction of distance education as an innovative form of studies is a complicated process that needs specific organisational provision, management. In the science of management up to the present moment the term management is mostly used, referring to (Kristovska, 2005):

- the complex of activities, including planning, organisation, coordination, motivation and control; this complex is oriented towards more effective use of organisation's employees, financial, material and information resources, in order to achieve the aims of the organisation with higher affectivity;
- skills to achieve the set aims, making use of human labour, intellect and motives of behaviour.

The term *management of distance education* is attached to purposeful (clear, definite and *achievable aims*), creative arrangement of an open and flexible system for the support of studies, the provision of continuity and development by means of different resources. According to preconditions for the introduction of management targeting principles, distance education provides (Kristovska, 2005): 1) regular examination of the aim and its update in compliance with the needs of distance education target groups within the conditions of labour market; 2) a variety of resources necessary for the achievement of the aim; 3) system of regular assessment and control, where those who are studying and the organizers of distance education are able to track their achievements progressing towards the aim. In the management of distance education it is very important to apply the principle of *management by walking around*, where the basis is communication with the staff, and information obtained *on first hand basis.*

V.Kanavo (Канаво, 2010) has identified three fundamental principles of distance education environment: 1) distance education as the environment of technologies; 2) distance education as an open and accessible environment of education; 3) freedom and flexibility in the environment of distance education.

Latvian scientists (Ozoliņa, Slaidiņš, 2003) point out that the ideas and methodology of distance education are based on several interconnected principles: 1) an opportunity to study from the distance, 2) openness and wide accessibility, 3) flexibility and adaptation.

According to the experience of the authors of this article, ***there are also other principles or requirements for the successful provision of distance education***: 1) provision of pedagogical and psychological environment that is supportive, friendly, motivates self-directed learning; 2) individual approach during the studies, which is not the same as individualisation of education (*individual approach in* learning and *individualization of education* are terms which are not synonymous, though are closely interrelated and complement each other); 3) the provision of didactic and methodical environment: structuring of study content and understandability; designing of video lectures, teaching aids un methodical materials and their accessibility, technical equipment with technical support service; 4) versatile interaction between the educator and the student (teaching and learning), where a special place is given to direct and indirect as well as timely exchange of information, providing feedback loop; 5) research of distance education specificity and the process itself, experimental approbation of innovations in practice; 6) sharing of experience both on the level: of the institution and individual.

The specific qualities of distance education have been justified by different authors in their publications. In our theoretical research we have paid special attention to the analysis of advantages and disadvantages of the distance education environment, which is very important in the management of distance learning. Both the results of theoretic research and personal experience enabled us to come to a finding that distance education has several ***advantages***.

For example, S.S.Ravi (Ravi, 2011), analysing the specific features of distance education, points to: 1) flexible system of education without any limitations as to the age, place, sex, religion or time; in distance education the pace of student's progress and the time of learning is set by the student; 2) distance education provides an opportunity to get education for those who are not able to complete education in the traditional system; 3) reduces psychological and physical stress, pedagogical pressure

that can appear in the system of formal education; 4) distance learning encourages and makes one believe in one's own power and skills; 5) distance education improves and develops those competences that are very important in the modern society; 6) helps to improve knowledge and skills in the field of interest; 7) encourages those who are socially and economically different; 8) encourages and provides opportunity to combine studies with work; 9) turns education into a lifelong process.

J. Duggleby (Duggleby, 2000) identifies the following advantages of distance education: 1) access to a wide scope of knowledge and skills; 2) convenient learning for those who are not able to attend regularly full time classes (e.g. work in shifts), because the student can learn any time; 3) distance education is suitable for those who travel very often, as anything that might be necessary can be taken and accessible anywhere in the world; 4) distance education is suitable for those who have various obligations (e.g. mothers with small children, full time employees etc.); 5) it provides an opportunity to study for those who live in remote areas where there are no traditional schools, for example, in the countryside; 6) it is possible to economise on time that would have been spent on commuting to/back from the school; 7) distance education is suitable for those who are handicapped, have health or communication, behaviour problems or other obstacles that hinder or deter the completion of education in the traditional way; 8) distance education students can decide themselves when to start the new study subject; 9) the quality of materials for distance education (books, video instructions, audio) and its content is good and they are accessible to everyone; 10) the quality of studies is less dependent on the communication skills of the teacher, attitudes towards students and/or the subject of studies etc.; 11) in distance learning assessment is more objective: assessment is performed evaluating the quality of the work not the age, nationality, language skills etc.

G. Feders considers that the advantages of distance education are that the student (cited in Katane, Kristovska, Katans, 2013): 1) studies anytime when it is convenient and in a suitable pace; 2) can complete the highest education; 3) can study from effective learning materials; 4) can use features accessible in distance learning, including visual effects: video recording, sound effects-audio recording etc.; 5) can use individual learning opportunities, including also the support of their individual teachers/consultants; 6) can listen to lectures several times.

Our experience shows that there is one more benefit in distance education. It is a possibility to study *incognito*, which is very important for some people due to various important reasons, for example, position, social status, shyness, negative previous experience in communication etc. The ethics of distance learning provides the confidentiality of study process, which is usually stipulated in the learning/studying agreements. An individual profile and access code are assigned to each student that can be used in examinations and tests without disclosing the name and surname of the student. Distance education enables people of different age to study in one group without being ashamed for their age. Distance education also provides opportunities for disabled people.

As any kind of education acquisition distance education has also its ***disadvantages***.

I.Savina (Савина, 2009) points at several disadvantages related to distance education: 1) limits of technical facilities; 2) technical incompetence of educators; 3) lack of trust in technologies, after some time students want to communicate with educators in person; 4) educators' methodological incompetence in distance education can lead to a situation when students will become passive users (consumers) of education content (information) sources and different technologies; 5) lack of learning skills as well as technological incompetence can lead students to different problems in distance education, including academic failure and loss of motivation to change something; 6) limited facilities for laboratory and practical assignments that do not encourage the development of practical skills; 7) in rural areas there are still problems with internet access, thus with the access to distance education; 8) social isolation, insufficient verbal and non-verbal communication; 9)absence of pedagogical control during examination and progress tests; 10) inability to overcome problems brought about by the specific process of studies in distance education forces students to discontinue their education; 11) methodological incompetence of educators in distance education can lead to uniformness of learning forms and lack of pluralism in opinions, including high programmability of test assignments leading to similarity of tests, decreasing creativity, variety of answers etc.; 12) international level of distance learning requires a competence of language, including foreign

language, whose level very often is not sufficient to study successfully; 13) problems in distance education or development of separate courses arise when educators are unable to switch from the traditional pedagogical approach of full time studies to the approach of distance education (comment: according to the experience of the article's authors not always lectures that are prepared for distance learning are well-considered and clearly structured, these lectures do not provide general survey of study content and fail to prepare students for independent work, and are also fragmented, over-detailed and cover only one narrow subject); 14) the methodological requirements set for the teaching aids in distance education not always allow their authors to display full content of studies.

S.S. Ravi (Ravi, 2011) writes that distance learning has the following disadvantages: possible digression from the academic standard; limited practising experience; distance education students have few opportunities to involve in the activities of the study program; it is impossible to facilitate such values as love, sympathies, cooperation etc. in distance education; students have no possibility to ask their questions about interesting, doubtful of unclear issues to educators communicating directly with them; it is impossible to acquire specific education by means of distance education, professions that to a great extent are tied with acquisition of practical skills, for example, science, engineering, technologies and medicine; there are societies or parts of a society (social groups) that are led by stereotypes and a biased attitude towards education obtained by means of distance learning, including certificates and diplomas, and prefer education obtained in the traditional full time education.

Also J. Duggleby (Duggleby, 2000) states that in distance education: students may feel socially isolated and that can diminish motivation to learn; lack of opportunity to express personal opinion in discussions with other group mates or course mates; impossible to carry out cooperative learning, including group work, ensuring cooperation in the accomplishment of specific assignments; lack of peer support; lack of flexibility in the content of educational program, because the programs for distance education are specially selected and controlled; additional resources must be allocated (also financial resources) to design materials for independent learning, the content of learning aids can quickly become outdated; sometimes students have to wait for a feedback from the educator for several days or even weeks; impossible to get explanation and find a solution for a problem at once, it is time consuming; educators do not see their students, therefore they cannot follow the non-verbal language of the student and understand that students are uninterested or confused; in some subjects a special equipment is necessary, that cannot be always provided due to high costs; difficult to check and assess definite practical skills.

G. Feders (cited in Katane, Kristovska, Katans, 2013) finds the following weak points in distance education: 1) distance education is not elitery; 2) lack of personal contact with the educator and other students; 3) considerable investment of capital is necessary to start the process of distance education; 4) the offer of distance education programs is limited as not all study programs can be implemented by means of distance learning; it is necessary to have a powerful computer with fast internet access; 5) due to internet is not accessible in the whole territory of Latvia, only where there is internet access.

Some positive perspective towards the issue of distance learning popularity growth is provided by V. Kanavo (Канаво, 2010), suggesting that at the present moment there are short-term problems (difficulties) that later will be reassessed, following the development of the society and technologies, improvement of knowledge society's computer skills and competences, and the increase of human well-being. Disadvantages of distance education, to a great extent, are brought about by the incompetence of educators un lack of psychological preparedness for the work in the environment of distance learning. The preparedness of educators for pedagogical work in the environment of distance education can be facilitated by: improving and developing further the competences of educators, including media competence, methodological competence working in distance education; improving study programs and available study materials; ensuring considerable variability of examination assessments related to one topic, that would exclude unfair use of assignments performed by other students; providing infrastructure necessary for distance education; educators must be offered opportunities for further training in the field of multimedia; organising the team-work of different professionals, incl. IT staff in order to maintain the quality of distance education environment; diversifying the templates for examination assessments beyond the limits of interactive tests in e-environment; recognizing the importance of entrepreneurship also in the field of education, as the

costs that are necessary to provide the environment for distance education are considerable; each institution of distance education using or designing user friendly and well-structured e-environment that at the same time would provide a wide range of opportunities.

Our experience testifies that the ***advantages*** of distance education, first, are connected to the provision of education's individualization and accessibility as: there are no geographical limits or state borders for distance education. It is accessible in any place where there is Internet access; distance education is possible in any time of the day, time limits for distance education are flexible (except the dates of examination that have been previously set and the time allotted for an online test), distance education has no limits of age, the target audience of distance education is very varied throughout the whole life. The ***disadvantages*** of distance education are connected with high costs that occur developing and maintaining e-environment for distance education, the operation of technologies and provision of Internet access, as well as limited opportunities for socialisation in distance education environment.

As experience shows, considerable experience in distance education organising professional education is amassed abroad, however this is still very disputable in the educational environment of Latvia, since there are stereotypes regarding distance education in professional education. The authors are convinced that further development of distance education environment in Latvia will solve the existing problems and controversies in the professional education as well.

Conclusions

Ecological approach is very important in research of the distance education environment. three main contexts of distance education environment: *1) information environment, 2) technological environment, 3) e-environment.* In relation to all three contexts the specific feature of distance educational environment is uncovered by the key concept *e-learning (e-studies)*.Taking the ecological approach as the basis in education several distance education environment qualities and functioning principles can be identified, analysed and assessed. There are several principles that characterize and provide the specificity of distance education environment, for example: *distance, flexibility, openness*. All principles on the whole ensure the opportunity to study at any place, time, at a suitable pace, according to the individual plan and abilities, possibilities and needs, as a result, the individualization of education is possible.

The distance education environment has its advantages and disadvantages. The advantages of distance education, first, are connected to the provision of education's individualization and accessibility as: there are no geographical limits or state borders for distance education. It is accessible in any place where there is Internet access; distance education is possible in any time of the day, time limits for distance education are flexible (except the dates of examination that have been previously set and the time allotted for an online test), distance education has no limits of age, the target audience of distance education is very varied throughout the whole life. The disadvantages of distance education are connected with high costs that occur developing and maintaining e-environment for distance education, the operation of technologies and provision of Internet access, as well as limited opportunities for socialisation in distance education environment.

Distance education is a perspective direction in education and research in the context of information society.

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Education for getting competence

Content of vocational school student world views from the perspective of educators

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Abstract: The need for sustainability in society, as well as globalisation, impact of information technology, and changes in the economic structure raise an issue on objectives and tasks of vocational training. Socioeconomic transformations demand education, including vocational education, to be viewed as a process in which a person develops spiritually and in which life experience transforms into an individual paradigm – a world view. The goal of this article is to reveal opinions of teachers and experts working in the sphere of vocational education about world views of vocational school students and possibilities of world view formation in vocational education system. Interviews with teachers and experts were conducted after they were introduced to the philosophical and educational aspects of world view, as well as results of a study on the content of students' world views. The interviews were analysed using the Weft QDA content analysis software. Results reveal unrealised opportunities in construction of the core of world view, such as personal experience of values and self-evaluation in the family and at school. Vocational education experts emphasise the importance of teacher's personality, world view and self-evaluation, as well as interaction between teachers and students. Interviews with teachers reveal more sceptical opinions as they identify many disputable and unresolved issues related to organisation of personality formation process in vocational education.

Keywords: vocational education, world view, values, teacher competencies, family

Introduction

Education has an impact on every individual, and thus education paradigm influences individual paradigm which, on turn, determines the way an individual develops his/her relations with the world. This paradigm is world view, which is formed in individual's mind on the grounds of his/her perception and understanding of the world and which structures chaotic impressions (Idol, Jones, 1991). This paradigm develops from the system of ideas in realised practice. Concurrently, this paradigm is also socially constructed and dependent on historical reality (Popkewitz, 1984). Individual's world view as a paradigm considerably influences social life because it shapes individual's thinking, the way he/she deals with problems, the goals he/she sets and the values he/she has. If an individual paradigm – world view – is regarded as an integral element and objective of educational process that can enhance sustainability of society, facilitation of world view formation becomes an essential task and outcome of vocational education.

Growing popularity of vocational education demands paying greater attention to the process of world view formation within this particular type of education. If it is assumed that world view is an individual paradigm analogous to learning outcome, world view is formed during the vocational educational process by consolidating knowledge, skills and attitudes acquired by the young people during the study process into a single system of viewpoints. World view is based on personally significant values and determines individual's attitude towards reality and one's self, and thus influences his/her future life.

World view is a self-created system of concepts which reflects individual's moral experience manifested as attitude to the world and one's self as a system. Thus the fundamental attitude of an individual towards the world and life is formed (Dilthey, 1960). World view has to be viewed in close connection with human value system and individual's notion of an ideal world and people within this world (Celms, 1934; Mauriņa, 1938). World view focuses on tasks which are essential in human life, such as ability to interpret the goal of life, realise personal meaning of life (Heidegers, 1998), and

become aware of the attitude towards one's self, society and nature through reflection. World view envisages personal involvement that can be ensured only through internalisation during which an individual develops (constructs) his/her attitude towards phenomena encountered in nature, society or one's self (Augškalne, 2012). World view as an individual paradigm interacts with society and social paradigms in a complex manner. One way of interaction is realised through education which fills an individual paradigm with a definite content and thus assists in developing individual's attitude towards himself/herself and the world full of causalities, as well as influences individual's actions.

Although world view formation among vocational school graduates is influenced by the entire educational process, which should be viewed in a broader context, teachers who work in vocational education institutions and experts who determine and facilitate further development of vocational education have a particular role in this process. Therefore, this article analyses the opinions of vocational school teachers and experts in vocational education about the content of world view as a fundamental attitude of vocational students to life, as well as possibilities for world view formation in the process of vocational education.

Methodology

Qualitative research has a hermeneutic orientation, and it is based on interviews with vocational school teachers and experts in vocational education conducted in 2011 and 2012. Interviews were conducted after teachers and experts were introduced to the concept of philosophically educational world view (Augškalne, 2012) and the results of the study on the content of world view among vocational students (Augškalne, Garjāne, 2012). Respondents were given time to prepare for interviews. Interviews were conducted with six teachers working at municipal and district vocational schools, as well as three experts in vocational education. Analysis of partially structured interviews was conducted in the following two stages: substantive analysis and content analysis (Krippendorff, 2004) performed with open-source online software Weft QDA (Fenton, 2006). The broadly applicable software is devised for qualitative researches conducted in social sciences and humanities. The first stage of analysis allowed identifying the overall categories which were then incorporated in the matrix and used in coding of interviews (Table 1).

Table 1

Codes used for interviews with teachers

Group of categories	Category	Code
Teacher	Internalisation – teacher	Es
	Impact of the teacher	Skol.
Student	Internalisation – student	Vards
Values	Values in education	Vert.
	Social skills as value	Soc.
	Knowledge as value	Zina.
	Reflection as value	Refl.
Influences	Impact of the family	Gi.
	Impact of the curriculum	Sat.

For coding purposes, interviews with teachers were numbered. The coding allowed determining the following aspects:

- degree of internalisation among interviewees, namely, the extent to what the teacher internalises questions contained in the interview;
- degree of internalisation among students, namely, whether teachers call individual students or groups of students by name;

- significance of values in education and general attitude of students towards values;
- whether teachers regard social skills as one of the values to be taught to students;
- whether teachers are able to characterise attitude of students towards knowledge as value;
- whether reflection is characteristic to teachers, and whether it is observed among students as well;
- whether teachers believe that they can facilitate world view formation among students;
- impact of the family in world view formation;
- impact of the curriculum on world view formation.

Experts in vocational education were chosen in order to ensure representation of vocational education institutions located in Riga and other districts, as well as the Ministry of Education and Science of the Republic of Latvia or its agencies. The matrix of categories was devised (Table 2) on the grounds of substantive textual analysis (Augškalne, 2012) and enabled finding answers to the following questions:

- What is the role of the educational institution in formation of students' world views?
- What is the role of the teacher in formation of students' world views?
- Is the teacher involved in formation of students' world views?
- Does the curriculum influence formation of students' world views?
- What is the role of the family and society (outside the school) in formation of students' world views?

Table 2

Codes used for interviews with experts

Group of categories	Category	Code
Teacher	Role of the teacher	Skolot.
	Reasons for teachers' involvement	Iesaist.
Influences	Role of the educational institution	Skola
	Role of the curriculum	Saturs
	Role of the family and society	Gi/sab

Results and discussion

Content analysis of interviews with teachers allowed determining the incidence of codes in coded interviews (Table 3 and Table 4).

Table 3

Incidence of codes in interviews with teachers

Code Interview	Es	Vards	Vert.	Soc.	Zina.	Refl.	Skol.	Gi	Sat
No.1	9	0	13	2	4	2	4	8	7
No.2	11	0	8	4	6	3	5	6	6
No.3	8	4	6	0	6	2	8	8	7
No.4	16	3	6	12	4	12	14	10	12
No.5	13	0	7	3	5	5	10	9	8
No.6	9	1	6	2	4	3	3	5	6
TOTAL	66	8	46	23	29	27	44	46	46

Content analysis of interviews with teachers (Table 3) reveals that all respondents feel involved in the interview and believe that the interview is truly aimed at determining their opinions. Interviews do not contain sections indicative of an alienated attitude towards the interview or attempts to avoid responding to questions or pondering on questions posed. During the interview, only three respondents (No.3, No.4 and No.6) refer to particular students or groups of students by name; it which means that degrees of internalisation of teachers towards themselves and students differ significantly. This could indicate that teachers still perceive students as objects rather than personalities and full-fledged partners in the educational process.

- "Because with it (subject taught by the respondent) I am trying to teach children to think logically and to make decisions in extraordinary situations." (No.4)
- "They do not want to take on responsibility; the group I am responsible for is not willing to take on responsibility. They are objecting to that, but I am forcing them to take it." (No.1)
- "So I believe that it depends on a teacher as well. For example, some teachers say to students that there is no need to study because they know nothing and they will remain stupid." (No.4)

The number of codes (from 6 to 13) referring to values as an integral part of education process and general attitude of students towards values (Table 3) registered in each interview attests to significance of this issue for teachers.

- "In reality, when they leave the school they see the real life; and those who start working in their 3rd or 4th year can see in practice and the real life that knowledge, the learning process and other values are needed." (No.4)
- "The group consists of 25 students and it can have even 25 different opinions about values. Often the negative attitude to values prevails because it is voiced louder. And students with greater aesthetic and ethical values are quieter. The good and the bad are two different attitudes, and increasingly often people believe that that it is better not to talk about the good." (No.1)

Concurrently, differences in the number of codes (twofold) and the content of the coded sections indicate that interviews with teachers do not provide comprehensive information on the development of internalised values among students during vocational education.

- "I am asking them about values; I am not asking what is relevant to each of them individually. No response. Then I am asking what is essential for them personally? And then I am trying to differentiate... They do not understand the concept of value as such; to them value is something that can be bought for money." (Nr 4)
- "Children understand what they can and what they must not do; they have some kind of understanding of values. But... they do not know how to apply this understanding, and they do not understand why something is bad or good." (No. 1)

Social skills, as well as the ability and desire of students to take on responsibility, solve conflicts or sympathise with others are rarely mentioned in the interviews with teachers (Table 3). The interview No. 4 refers to these qualities, and the relevant codes were registered in 12 coded sections; while interview No. 3 does not contain these codes at all. Similar attitude (from 4 to 6 codes) can be observed in responses related with knowledge as value.

- "Undoubtedly, knowledge is a value. Nowadays, it is even the greatest value of all. There are many students studying in higher education institutions because without any education they will not be able to work. So education is essential."
- "In principle, children, including the little ones and our students, know that knowledge is needed."
- "In general, knowledge is needed; it is needed as a tool to climb the career ladder. I think that from this perspective knowledge is value."

Significant difference can be observed in the attitude of teachers towards self-reflection and facilitation of self-reflection among students during the educational process (from 2 to 12 codes). Only one respondent indicated (in different ways and with different terms) that reflection is significant.

- "Now they begin thinking about each other" (No. 4)
- "Now I have to think about it." (No. 4)

- "The way I facilitate expression of their opinions it is essential in the educational process." (No. 4)

Probably this reveals general attitude of teachers towards values as a core of world view; it might also mean that formation of values in the process of vocational education is rather superficial and it is not among the main objectives of education despite being regarded as significant.

Codes which indicate that teachers have impact on formation of students' world views were registered in 44 coded sections; it means that, in general, teachers regard this task as significant enough (Table 3). Concurrently, the great difference in the incidence of codes registered among interviews (14 and 10 codes in interviews No. 4 and No. 5, respectively; and only 3 and 4 codes in interviews No. 6 and No. 1, respectively) reveals the significant divergence in teachers' opinions. That can also be concluded from the content of the coded sections.

- "It depends only on the teacher." (No .4)
- "Advisory class – it depends on whether the teacher explains something or not. But in general, we have a different approach to advisory classes..." (No. 4)
- "If the teacher explains all these issues to students, students change." (No. 5)
- "… so I think that it depends on the teacher." (No. 5)
- "If the class master or any other teacher is a role model to the student, the student is listening to him/her and is doing what he/she says, but otherwise…" (No. 6)
- "Unfortunately, there are teachers who belittle the existing values. That is sad…" (No. 1)
- "We could wish for a better competence of teachers in application of diverse methods. They should attract students to learning, because it is not appropriate to say that one only has to study and write everything down from books without any possibility to ask additional questions." (No. 4)
- "None of our teachers pays particular attention to that." (No. 3)

Some of the facts referred to in the interviews are alarming for educational sector, namely, content of advisory classes is said to depend only on pedagogical values (or anti-values) of the teacher and the attitude of teachers is superficial because they consider advisory classes as irrelevant.

From teachers' perspective, the family has a significant role in forming students' world views (Table 3). The total number of codes (46) emphasising the role of the family is greater than that indicating the role of the teacher (44). Also individual interviews (except interviews No.4 and No.5) more frequently refer to the role of the family than the role of the teacher, namely, phrases indicative of the role of the family prevail in the coded sections.

- "I think, yes; of course, it depends on the family." (No.4)
- "It does not stem from families either because the parents are busy; sometimes grannies explain something." (No.4)
- "From the very small age the child knows and feels what he/she may and may not do; the family is already the second phase. However, the family cannot provide a theoretical background for reasons why the good or the bad is happening." (No.4)
- "I wouldn't say that it stems from the family. I guess it is the result of the efforts taken over the period of one and a half years. Only now they begin thinking about each other." (No.3)
- "Families differ – there are the ones which teach children, and then there are the ones in which children are left to develop on their own. In the latter case, that can be taught at school, provided that it is possible."(No.3)
- "It is not discussed within the family to the necessary extent; children learn something completely different on the streets."(No.3)
- "There should be some foundation which, probably, should be laid by the family." (No.5)
- "As far as I know, all family members are so busy and so tired now that they are not talking, still less discussing anything." (No.1)
- "In our discussions students say: "What else can I say? That's what I hear at home!" It is hard to form their world views when they are calling each other names or even fighting. Students already are introverted." (No.1)

- "If there is no communication within family, a child cannot learn to communicate with his/her peers. I already said – there is an overall alienation." (No.1)

Similar conclusions can be drawn from teachers' responses to the questions regarding the role of the curriculum. The total number of codes (46) referring to role of the curriculum is equal to the number of codes referring to the role of the family (46) and slightly larger than the number of codes referring to the role of the teacher (44). In three out of six interviews (No.1, No.2 and No.6) the number of codes in this category is larger than the number of codes referring to the role of the teacher; on one occasion (interview No.6) the number of codes is even twice as large. Probably, it is indicative of teachers' reluctance to take on responsibility.

Table 4

Incidence of codes in interviews with experts

Code Interview	Skola	Skolot.	Iesaist.	Saturs	Gi/sab
No.1 E	23	24	4	2	13
No.2 E	21	20	0	4	14
No.3 E	28	25	3	0	9
TOTAL	72	69	7	6	36

Incidence of codes referring to the role of schools and the role of teachers in facilitation of world view formation among students in process of the vocational education (72 and 69, respectively) is nearly equal in all interviews with experts in vocational education (Table 4). The unanimity of experts is also noteworthy, namely, there is insignificant difference in the number of codes (21 – 28) in responses to questions regarding the role of the educational institution and in the number of codes (20 – 25) in responses to questions regarding the role of the teacher. Concurrently, the small number of codes referring to teachers' involvement in formation of students' world views (a total of 7 codes) indicates that teachers' involvement in this process is sporadic.

Experts think that probably teachers are not motivated or competent enough (Augškalne, 2012) to assist students in formation of their world views. In responses to the questions regarding the role of the curriculum the number of codes is small – a total of 6 codes (Table 4). Experts believe that the curriculum is not the determinant in formation of students' world views. The number of these codes is 11.5 times smaller than the number of codes referring to the teacher's role which means that experts believe that the teacher is significantly more relevant in the process of world view formation among students than the curriculum.

- "The curriculum is not irrelevant; however, it is not the most essential. If we put all elements in a triangle then two angles are the teacher and the student, while the third angle is the family or the people who support the young person. The triangle is the core, and the curriculum is merely an additional element." (No.E3)
- "If the teacher is not emphasising that he/she is more superior and knowledgeable, if the teacher proves that he/she is able to walk in the student's shoes and to tackle the problem jointly with the student, and if the teacher feels responsible before the student, then the student begins feeling responsible for being equal."(No.E3)
- "The teacher has to be professional in order to form world views in the class he/she teaches; unfortunately, a regular teacher is not capable of that. Another aspect, of course, is the student's eagerness and motivation to learn. Undoubtedly, it also depends on the student's character, ability and things that have been taught to him/her in childhood." (No.E1)
- "Teacher's hands are tied in a way, and these ties are financial. In order to from world view, the child or the student has to be taken and educated outside the school, because, in my opinion, many young people, particularly those in rural areas, simply have no possibility to get outside their environment." (No. E1)

- "Another aspect is the environment at school. Whether the school is supportive, interesting and attractive to the student; whether there are any discussions held with teachers; whether there is student self-government, or any extracurricular activities and traditions?" (No.E2)

The number of codes that refer to the role of society and the family in formation of students' world views is comparatively large (a total of 36 codes); it means that experts consider students' extracurricular activities as significant in this process. However, comparison of this indicator with the number of codes referring to the role of the educational institution and the teacher (72 and 69, respectively) allows concluding that experts attach greater significance to the role of the school in the formation of an individual paradigm – world view – of the student.

Conclusions

- World view as an individual paradigm is formed during the vocational educational process by consolidation of knowledge, skills and attitudes acquired by the young people during the study process into a single system of viewpoints based on personally significant values.
- Vocational school teachers regard the formation of world view as significant and even essential; however, they underestimate the role of interaction among the teacher, the student and the family.
- Vocational school teachers and experts believe that development of personal attitudes is significant; however, they do not highlight the relevance of either advisory elements in the classes or special advisory classes in formation of students' world views.
- Experts in vocational education think that although teachers have a significant role in formation of students' world views they are not motivated or competent enough to facilitate formation of students' world views.

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A constructivist approach in teaching in higher education for getting methodological and reflection competences

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Abstract: A constructivist approach in education as a paradigm shift from teaching to learning with an emphasis on active individual's intelligence organization and immediate construction of new information to experience is a quite serious challenge in contemporary higher education. Therefore the aim of the article is to highlight the principles of the constructivist approach in relation to the development of methodological and reflection competences. The method of questionnaire was used to investigate the students' self-evaluation on the development of the competences in various study courses. The main results of the study were obtained from the fields of production and processing, architecture and construction, education and economics students of Latvia University of Agriculture. The students marked high, medium and low obtaining level of methodological and reflection competences, and results could be used in the revision of planned results of study courses and implementation of methods and content promoting the competences.

Keywords: methodological and reflection competences, metacompetence, a constructivist approach.

Introduction

Development of competence is the aim and a planned result of each study programme and course. The aim of the article is to reflect the results of first year students' opinion on getting of methodological and reflection competences.

Constructivism principles help to understand and evaluate competence development with a teacher in the role of a facilitator in positive and supportive learning environment. A constructivist approach in education emphasizes active knowledge construction on the basis of self-experience. Constructivists' perspective is abandoning transmission of information from a teacher to a student and therefore reflection and methodological competences is a feature of knowledge which is developed meaningfully by an individual based on self-experience and thinking about it. The students develop their ability to control their own learning, improve learning skills and assess their learning outcomes.

Constructivism is an appropriate basis for successful development of all types of competence, int. al. metacompetence as well because the main idea of it is an individual's ability to act demonstrating one's potential.

Methodological and reflection competences which in one word are often called as metacompetence reflects holistic approach towards an individual's potential. Therefore metacompetence comprises competences which allow the expansion of other individual's competences (professional, social, basic, individual). Metacompetence is the most general and through-composed competence serving as a guarantee for further actions in future situations. That is why the investigation data on the first year students' metacompetence development are indicators of their critical, systemic and creative thinking development.

Methodology

The questionnaire on the development of first year students' methodological and reflection competencies had been carried out. 71 student of Latvia University of Agriculture from the fields of food technology, landscape architecture, construction, education and economics at were questionnaired. The survey covered 45 study courses.

The method of questionnaire was used to investigate the students' self-evaluation on the development of the competences in various study courses. The students marked high, medium and low obtaining level of methodological and reflection competences, and results could be used in the revision of planned results of study courses and implementation of methods and content promoting the competences.

L.Cohen, L.Manion and K.Morrison (2011) ethical issues and recommendations on operationalizing the questionnaire, and M. Siniscalco and N. Auriat (2005) guidelines for writing questions were used as keeping the vocabulary simple and the questions short, avoiding of: double-barrelled, hypothetical questions and double negatives, overtaxing of the respondent's memory and overlapping response categories.

Table 1

First year students' evaluation of the development of their methodological and reflection competences

Indicators		*Evaluation*					
		High	Medium	Low	∑	N_{max}	$N_{\sum}$, *%*
1. Methodological competence	N	5431	5432	5433	5434	880	**49**
	%	56	33	11	100		
2. Reflection (self-)	N	10886	10889	10892	10895	880	**35**
	%	64	31	5	100		
3. Reflection (local, global coherences)	N	16367	16372	16377	16382	880	**47**
	%	42	56	2	100		
4. Independent thinking, taking decisions, understanding -self	N	21874	21881	21888	21895	880	**47**
	%	81	17	1	100		
Totally 1 - 4	N	**27407**	**27416**	**27425**	**27434**	**3520**	**45**
	%	61	34	5	100		
Other 9 indicators	N	**32966**	**32977**	**32988**	**32999**	**7920**	**57**
	%	66	26	8	100		
Totally (13 indicators)	N	**38551**	**38564**	**38577**	**38590**	**11440**	**53**
	%	65	28	7	100		

N – number of the indicator's evaluations; N_{max} – maximally possible number of the indicator's evaluations which is determined by multiplying the number of study courses and respondents in each of five study fields (food technology, landscape architecture, construction, education and economics) and summing the four multiplications; $N_{\sum}$, *%* - actual number of the indicator's evaluations put into per cents from maximally possible number of the indicator's evaluations, which describes the study courses' potential implication opportunities on the development of competences.

The study courses' potential implication opportunities on the development four methodological and reflection competences indicators are lower (45%) than on other indicators (57%).

Testing with chi-square tests (Preacher, 2001) it is established that the fourth indicator's evaluation data distribution differ statistically significantly ($p<0.00$) from other evaluations data distributions. Four methodological and reflection competences indicators in comparison with other indicators have relatively seldom evaluation *high* (61%) but the evaluation *medium* (34%) occurs more often (Table 1). Differences of data distribution of evaluations of the indicators as *methodological competence, reflection* and *independent thinking, taking decisions, understanding -self* are statistically important ($p<0.00$). The evaluation - *high* 81% of the indicators as *independent thinking, taking decisions, understanding –self* –is relatively higher.

Results and discussion

Competence is a wide and developing concept comprising the development of the individual's potential. Competence as a complicated entity has to be distributed in several overlapping competences with the purpose to emphasize the developmental opportunities of the individual's

potential. Competence can be divided into: meta, key, social, professional and self-competence. (Figure 1).

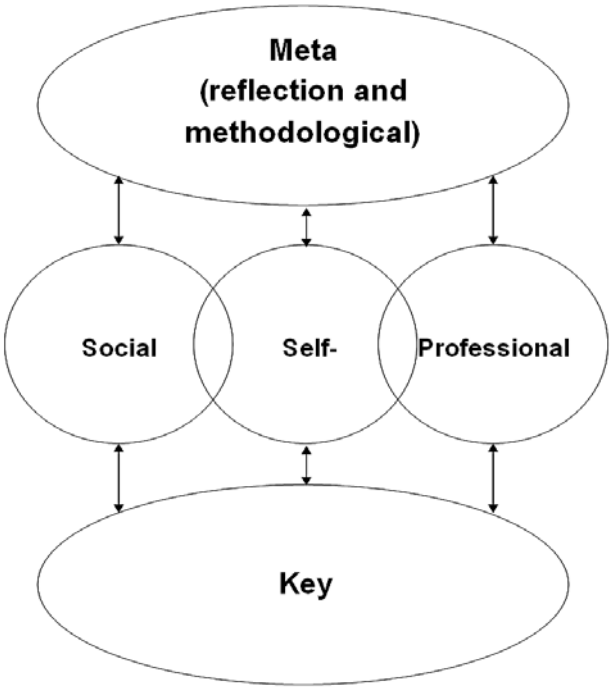

Fig.1. Coherences among competences

Key comptences comprise essential knowledge, skills and attitudes for lifelong learning related to the following competences: „1) Communication in the mother tongue; 2) Communication in foreign languages; 3) Mathematical competence and basic competences in science and technology; 4) Digital competence; 5) Learning to learn; 6) Social and civic competences; 7) Sense of initiative and entrepreneurship; 8) Cultural awareness and expression" (European Commission, 2007, 7).

Self-competence expresses as an individual's capability to judge and take decisions independently, understand himself/herself.

Social competence includes such competencies as co-operation, communication, competitive capacity and also self-competence (Halfpap, 1992; Keller, Novak, 2000) as well as it is described as a part of civic maturity which is demonstrated as an individual's capability to take decisions and manage particular social and business situations in compliance with conditions (Keller, Novak, 2000).

R.Garleja describes social competence as a „personality readiness to adapt to social environment, act in particular social conditions, nonstandard situations" (Garleja, 2006, 31).

Professional competence is a research object both in professional organizations and by theoreticians. Its demonstration shows an individual's capability including such aspects as continuous integration of contemporary and scientific cognitions in professional action, consulting and expertising, considering of Professional ethics, etc. R. Garleja emphasizes that professional competence is a capability to perfom in the frame of one's occupational functions considering values, select knowledge and develop skills, integrate knowledge and values with the purpose to achieve professional aims. Professional competence means that the individual is able to reflect analytically, model behaviour and material and abstract things, express views, systematize, organize, summarize data, etc. (Garleja, 2006).

The conception of meta-competence "refers to higher order, overreaching qualities and abilities of a conceptual, interpersonal, and personal/professional nature. This includes students' cognitive, critical, and self-reflective capacities" (Bogo, Regher, 2006).

According to F. M. Orthey (Kniel, 2009) the conclusion is that topicality of the metacompetence refers to the new definition of an employee who "..should be jobholder who is capable of flexibly adapting to changing work requirements" (Kniel, 2009, 58) and ".. identification with the job and a disposition to solve professional problems" (Kniel, 2009, 58) are highly important in nowadays labour market. In

order to supply the employees qualities necessary for the labour market the following metacompetences put forward by Orthey are crucial:

"1. Plurality competence (management and acceptance of versatile situations)
2. Transfer competence (exposure to discontinuity)
3. Process structured related competences (formulation of a life concept on the basis of realistic (self) analysis" (Kniel, 2009, 58).

So the topicality of metacompetence is that an individual should be able to adapt flexibly to changing conditions and requirements and solve problems both in everyday and professional situations.

Reflection as a crucial element of metacompetence includes evalution, prediction of consequences and appropriate judgement of an individual's action and decisions. The individuals conclude, think over their experience and take new decisions in the the result of reflection.

J.Keller and F. Novak (2000) conclude that the question *how?* is in the centre of methodological competence, and it relates both to thinking and demonstration of competence in action.

Holistic approach towards an individual's development is focussed on metacompetence as a result and process where both aspects are of high importance and they are one entity relates to constructivist approach. Constructivism as an education approach explains how humans construct knowledge on the basis of their existing experience and necessary means for the development of information construction ability. The main idea of constructivism is that an individual constructs one's own knowledge and learning outcomes are personally important for the individual.

Constructivists emphasize the ability to construct knowledge and their perspective is abandoning transmission of information from a teacher to a student. „..the art of teaching then consists in the skill with which messages devoid of ambiguity are transmitted, the art of learning in the ever-increasing skill with which a receiver extracts the meaning of the message picked up by his her apparatus" (Larochelle, Bednarz, 1998, 3). Therefore it is student-centred learning with a crucial emphasis on learning skills.

E. von Glasersfeld (1998) substantiated that knowledge is the result of active cognizing and it is an adaptive process in relation to a particular environment and behaviour, and one's experience is crucial in this process.

According to E. von Glasersfeld radical constructivism „puts forwards two main claims: knowledge is not passively received but actively built up by the cognizing subject; the function of cognition is adaptive and serves the organization of the experiential world, not the discovery of ontological reality" (Glasersfeld, 1989, 162).

Usage of the principles of constructivism including radical constructivism ideas promote the development of metacompetence because they emphasize active, critical and adaptive learner's thinking (Briede, 2013):

- **learning occurs by merging new information with a learner's prior experience and information technologies** as information management systems;
- **learning is an active social process** and a significant part of it occurs through interaction with a lecturer and students, and it is learning together in one community where each students has a possibility to develop his/her potential creating personal knowledge and social competence consciously;
- **learning is contextual** because students learn in coherence with their experience, prejudices, fear, views, etc., therefore learning is a social process and a part of their life, and success and mistakes are a feature of learning;
- **motivated learning when students find the meaning** of learning themselves in coherences with the essence of the course information;
- **students understand the „gap" between their actual knowledge and new knowledge they need to reach** and this cognitive dissatisfaction is an internal drive to reach a higher level of knowledge;
- **students have rights to express their opinions independently from their learning experience** therefore fostering their accommodation and assimilation process and explain new material in

their own words as well as promote understanding of the knowledge society aspects and values such as environment and green economy protection and management;

- **a lecturer has a role of a facilitator, coach, motivator and democratic style dominates in studies** to create a need for new knowledge;
- **much learning occurs through particular situations** by means of PBL, cooperative, exemplary, discovery, projects, etc. strategies **with an emphasis on learning by doing** promoting innovation, critical thinking, social and professional competence in the context of intellectual and human capital development in the knowledge society;
- **various kinds of evaluation as one of the means of developing critical thinking** is a part of a learning process: a lecturer-student, student-student and self-evaluation;
- **socially positive and updated learning environment** as learning technologies and e-learning technologies for the society and the humanity is an important factor for qualitative studies;
- facilitating students to monitor their learning process is an important means to develop their **learning skills which is a crucial feature for successful process of knowledge construction and involvement into the labour marke**t; employers note the capacity to learn as the most important generic competence for the university graduates.

The development of metacompetence reflects successes and shortcomings of the study process from various point of view because the essentials of this competence relate to an individual's thinking capabilities. Stating of metacompetence development also means stating of peculiarities of the study process including study methods, teacher's personality, didactical principles, etc. Therefore stating of actual development of metacompetence data analysis help to judge about necessary improvements of particular study courses.

Conclusions

- Constructivism principles is a means of successful development of metacompetence because they promote critically analytical thinking in coherences based on learner's self-experience as well as students can control their learning assessing the learning outcomes. The purposeful development of metacompetence serves as a condition of the development of social, professional and self-competence of students because it is an indicator of thinking abilities.
- Questionnaires on metacompetence should be carried out regularly because the results are indicators of learning process successes and shortcomings comprising overall qualities of the development of the individual's potential.
- Continuous development of metacompetence using the principles of constructivism promotes understanding of the individual's human capital opportunities in the frame of formal, non-formal and informal learning and promotes competence oriented systemic career guidance for sustainable development of knowledge society.

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Workplace wellness and specialists' attitude to work safety

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Abstract: We can speak about formal attitude to occupational health and safety and civil protection in Latvian society. On the one hand, employers and employees know occupational health and safety and civil protection provisions, on the other hand, they do not comply with these provisions on a daily basis. The aim of the research is to assess wellness, workplace wellness and attitude concepts, their connection, as well as people's desire to acquire and apply their knowledge on occupational health and safety and civil protection and their attitude to them. Methodology of the research – get acquainted with publications related to the study topic, unstructured observations, semi-structured interviews. It has been ascertained that attitude to occupational health and safety significantly affects safe and healthy behaviour in workplace. Sustainable education program may affect successful workplace wellness solutions.

Keywords: attitude, work safety, specialist, students, wellness.

Introduction

Sustainable community development is related to the formation and development of new attitude to workplace wellness in educational process. People are exposed to a wide range of adverse environmental factors, physical and mental strain. Human health is affected by a set of interacting factors - natural and anthropogenic environment - air, water and food quality, social and working conditions, weather conditions and home environment. Anthropocentric ecological consciousness has to be changed by ecocentric ecological consciousness where life and health are basic values ousting such values as power, money and information (Briede, Peks, 2011). Occupational health and safety and civil protection include people`s attitude to themselves, it is both employer and employee's responsibility to ensure wellness of a person lifelong.

Wellness is the optimal state of health of individuals and groups. There are two focal concerns: the realization of the fullest potential of an individual physically, psychologically, socially, spiritually and economically, and the fulfilment of one's role expectations in the family, community, place of worship, workplace and other settings (Smith, 2006). Workplace wellness is any workplace health promotion activity or organizational policy designed to support healthy behaviour in the workplace and to improve health outcomes (Pinder, Gibert, 2011).

A definition of the term focussed on active health promotion through lifestyle change emerged in the 1950s and spawned the wellness movement in the 1970s. The term then took on additional meanings as it began to be used as a marketing tool, and as it has since become linked with certain esoteric ideas.

The model of the six dimension of wellness was developed by Bill Hettler and includes the following dimensions: social, occupational, spiritual, physical, intellectual and emotional. Occupational include the following precept - it is better to choose a career which is consistent with our personal values interests and beliefs than to select one that is unrewarding to us (Miller, 2005).

R.Garleja (2003) characterizes a person's job satisfaction as satisfaction with job content, work environment and place. For an employee to be satisfied with the work he/she performs it essential to have positive attitude, interest, motivation, and ensure that his/her social and personal expectations are met.

A positive attitude includes the motivation and confidence to pursue and succeed at learning throughout one's life. A problem-solving attitude supports both the learning process itself and an individual's ability to handle obstacles and change. The desire to apply prior learning and life experiences and the curiosity to look for opportunities to learn and apply learning in a variety of life contexts are essential elements of a positive attitude (European Communities, 2007, 8).

When analysing researchers' observations (Eglīte, 2008), it has been found that a healthy way of life, following a rational daily schedule, healthy diet, and giving up bad habits increase life expectancy for 7-10 years. Analysis of scientists` ideas in literature, psychology and pedagogy, as well as in occupational health and safety and civil protection, the explanation of the concept *attitude* has been studied.

An attitude is an expression of favour or disfavour toward a person, place, thing, or event (the attitude object). G.Allport (1935, 798) once described attitudes "..the most distinctive and indispensable concept in contemporary American social psychology.. (p. 798) "..attitudes are often as rigid as habits.. (p. 813) and „..often persist throughout life in the way in which they were fixed in childhood or in youth.. (p. 814)", "..a mental and neural state of readiness, organized through experience, exerting a directive or dynamic influence upon an individual's response to all objects and situations with which it is related.. " (p. 810). Attitude can be formed from a person's past and present (Allport, 1935). Attitude is also measurable and changeable as well as influencing the person's emotion and behaviour.

According to theoreticians *attitude* is purely hypothetical construct, a theoretical model of response to a stimulus, an emotional assessment (Fishbein, Ajzen, 1975, 21).

D.Krech and R.Crutchfield (1948, 152) wrote, "An attitude can be defined as an enduring organization of motivational, emotional, perceptual, and cognitive processes with respect to some aspect of the individual's world" , ”A belief is defined as an enduring organization of perceptions and cognitions about some aspect of the individual’s world. It is the totality of the person`s cognitions about an object” (p.173).

E.Chapman and S.O'Neil (1999) defined attitude as "..a mental set that causes a person to respond in a characteristic manner to a given stimulus" (Chapman, O'Neil, 1999, 19).

Attitude can be defined as a relatively stable, positive or negative evaluative reaction, which is directed to concrete people, objects or ideas motivating behaviour connected with them (Olson, Zanna, 1993).

According to V. Myasishchev personality attitude is a system that characterizes a person as a personality in concrete action/behavior, based on social experience ties with different reality parties. It describes a person as a whole and not a separate field of activity of a human psyche (Мясищев, 1960).

A. Leontyev on the basis of V. Myasishchev studies indicate that the characterization of psychological development of a personality is in conjunction with real attitude of a personality and its content in relation to the world. Attitude characterizes a person and manifests both in individual acts and behaviour in general. The researcher points out that there is a correlation between a person's actions / behaviour and his attitude (Леонтьев, 1983).

The structure of attitude is characterized by ABC model of attitudes (McLeod, 2009), which comprises three components: **a**ffective, **b**ehavioural (or conative) and **c**ognitive. In our research behavioural component is significant: the way the attitude we have influences how we act or behave. As particularly essential we can emphasize the idea that cognitive and affective components of behaviour do not always match with behaviour (LaPiere, 1934).

Attitude object is one of four cognitive levels: physical object, category, intent, schematic. Researchers A.R. Pratkanis, A.G. Greenwald (1989) developed a sociocognitive model of attitude. Attitudes frequently serve three functions: heuristic—that is, attitudes provide a simple strategy for appraising an object; schematic—that is, attitudes organize and guide complex behaviour towards an object and memory for events; and self-related—that is, attitudes are used to define and maintain self-worth. These functions are used to construct a sociocognitive model of attitude. The cause for concern about the attitude concept is not warranted. Attitudes are successful predictors of a wide range of cognitive processes; they influence processing of episodic information in a predictable fashion; and they are related to important social behaviours under specifiable conditions. (Pratkanis, Greenwald, 1989).

In the context of occupational health and safety and civil protection working environment and place and attitude to it play an important role, but a specialist needs to obtain knowledge, skills and acquire competence on how to build the environment and maintain it in accordance with workplace wellness provisions. A specialist obtains knowledge and skills in formal and non-formal education as well as informal learning. The use of the knowledge in practice forms self-experience "..the obtained and evaluated knowledge, skills and attitudes in life activities that have turned into personally significant values" (Špona, 2001, 124). Self-experience can be considered as the basis of human competence. Specialists in various fields build up their competence in occupational health and safety and civil protection throughout their life, due to changes in information technology, social and economic activities it is necessary to diversify skills, methods, techniques, and to change attitudes. Several authors have studied the attitude to a healthy lifestyle and physical activities, eating habits and their effects on health. In his study W.DuMonthier (DuMonthier, Haneline, 2009) found that those students who have problems with having a healthy lifestyle (smoking, physical inactivity, obesity, excessive alcohol consumption), in practice do not indicate their patients the need for a healthy lifestyle and its impact on sustainable change. The question arises how an occupational health and safety specialist, who does not follow healthy lifestyle principles, affect people`s attitude when teaching healthy lifestyle.

Dr Arien van der Merwe's (Workplace wellness…) in his research has discovered that workplace wellness can change employees' attitude. Attitudes and behaviour will not change, by overloading employees with information on illnesses and health. Sustainable peer education program will maintain lasting behaviour and successful workplace wellness solutions (Workplace Wellness…, 2013; Workplace wellness…, S.a.).

Methodology

In order to assess possibilities to change people's attitudes towards occupational health and safety and civil protection, by understanding the processes that take place in psychological level of the endosystem and comprehensive functional level, it is necessary to determine the reasons causing non-compliance with occupational health and safety and civil protection requirements.

The task of the research was to determine: 1) whether people have a desire to obtain knowledge in occupational health and safety and civil protection; 2) if the obtained knowledge is applied in real life i.e. at work, social life; 3) if there is failure to apply the knowledge, what are the reasons; 4) what affects the respondent's thinking, attitude; 5) whether person`s attitude is influenced if a specialist teaching correct way of life, does not follow it him/herself; 6) which of the professions is affected more ? Data obtained from: 1) non unstructured observations, which the authors of the article have carried out for more than a decade; 2) semi-structured interviews, which were conducted through face to face interviews at respondents` homes or workplaces. In the selection of respondents people represented seven different professions- a sociologist, a lawyer, an accountant, a food technologist, an educator, an occupational health and safety specialist, a psychologist. Respondents' age: four people were in the age group 31-40, two were 51-60 years old; one person was 89 years old. Two respondents were men. Five of the respondents had a master's degree in the chosen profession. The interviews took place between 01.07.2013 - 15.08.2013.

Results and discussion

Answering the question - whether people have a desire to obtain knowledge in occupational health and safety and civil protection issues- the respondents answered that majority of people do not have it, "..humans are lazy by nature, rely on risk – thinking that nothing bad will happen to them, that is why they consider knowledge in this area as insignificant. Only when facing a real problem situation, such as deterioration of health, injuries, accidents, make people be more aware of their actions and lack of knowledge, or their inability to use them in a real life situation."

The interviewees try to use the obtained knowledge in real life - at work, in everyday life: for example, when working with electrical appliances, be able to act properly and prevent fire in case it is necessary. They usually follow the principle - "God helps those who help themselves". If the work is

strained and intensive (e.g. work at a computer), people forget about ergonomic recommendations. A typical example is an accountants' job, since there are direct duties and in addition there is a need to prepare reports or provide additional information. This gives a psychological stress as the work has to be done precisely and in due time, but this cannot always be done within working hours, as a result people do not take breaks as often as they have to. Occupational health and safety specialist said that, "..business leaders often have other priorities than those of setting up ergonomically correct workplaces for their employees". Respondents' personal experience affects their attitude towards occupational health and safety and civil protection regulations, they start contemplating - why I acted like that, and the information available in relevant literature (as web-based information is not always reliable).

The interviewed specialists believe that: "If a person really wants, he can affect his life, regardless of circumstances". An accountant shared her experience: " ..due to busy schedule, I started having health problems. In order to get better, I began doing regular physical exercises. I have to admit that this in turn reduced the time I spent with my family. I could spend more time with my family only on Saturdays and Sundays. As I want to be with my family I began thinking that something in my life has to be changed, and started to look for a new job. But I have not managed to find anything so far ". The study showed that all the interviewed professionals agree - even though a human as a reasonable being is able to judge, he cannot often cope with his weaknesses considering his whims to be more important, his attitude is affected notwithstanding the fact that a specialist teaching a correct way of life does not follow it himself**.** Although it affects all professions equally, police officers (drink and drive, do not observe traffic rules, are often fined), also doctors significantly affect people's attitudes. Occupational health and safety specialist`s formal attitude to occupational health and safety affects those employees with whom the above mentioned specialist works together, but the rest of society cannot assess his/her behaviour. Attitudes are expressed in human values. During the study the respondents arranged five values in order of importance (1– the most important, 5 – less important). It should be noted that five of the respondents consider health as a key value in their lives. An accountant and a psychologist (age group 31 - 40) consider family as the most important value in their lives (Table 1). A sociologist mentions work as the second most important value because loss of a job cause problems to enter labour market due to employers` disproportionately high requirements, they mainly want to recruit young professionals with experience. Most of the respondents underestimated education as a value because age is the most important factor in a labour market.

Table 1

The most important values of human life

The results of the interview

Respondents	Values				
	Success at work (career)	**Family**	**Education**	**Health**	**Work**
Sociologist	5	3	4	1	2
Lawyer	5	4	2	1	3
Accountant	2	1	3	4	5
Food technologist	5	2	3	1	4
Educator	5	2	3	1	4
Occupational health and safety specialist	4	2	5	1	3
Psychologist	4	1	5	2	3

Respondents had different points of view when answering the question whether it is possible to change people's attitudes.

An opinion expressed by a sociologist (aged 51-60): "System of penalties is very highly developed in our country, but it does not work. We have to change the advertising system, paying more attention to promoting healthy lifestyle, pointing out the importance of preserving health throughout our lives. More emphasis should be placed on healthy things. To make healthy things more attractive and enjoyable, especially for children so that they start to turn to healthy lifestyle already from childhood. Family traditions, advertisements affect their attitude.

A lawyer (aged 31-40) thinks that "Only person`s own bitter experience can change attitude." While working as a judge, she has gained conviction that family with its positive example can inculcate honesty and positive attitude towards life values in their children. It has to be admitted that society also forms human attitude. For example, I tell my five-year old son when and how to cross a street at the traffic lights. Then an elderly woman goes past us and crosses the street at the red light. Of course, the child asks why the others can go across the street, but he cannot? At work I have to meet with people denying their traffic infringement until a video recording is displayed, so this is people`s attitude. While the attitude from most of society does not change, the problem will exist.

An accountant (aged 31-40) considers that: human attitudes can always be adjusted by a series of positive examples and revision of knowledge. "People learn from positive examples in their families, from superior officials such as politicians, business leaders, teachers, doctors, etc. I also feel stressed at my work (it is intensive, and I want and it is necessity to manage all things on time, we need to master a new program, etc.). I started having health problems. In order to reduce such risks, I focused on healthy life style involving all my family in physical activities and, where possible, changed my eating habits. I hope that I will be able to change our family life and my example will serve as a driving force for the whole family to lead a healthier lifestyle.

A food technologist (aged 89), she worked as a senior research assistant and lecturer and gained experience when working with young people, she believes that the hallmark of the era is to do everything formally. It is typical to be married in a church, but how many of these couples attend church after the wedding. Family is a place where person`s attitude to the most important values of life have to be acquired. One of the features and values characterizing Latvian people was intelligence; it was brought in children in their families. During the Soviet occupation the intellectuals gradually disappeared. The rapid pace of living as well as changes in technology have changed values characteristic to the people of Latvian nation, such as - honesty, domesticity. Parents lack time for their children and they tend to compensate it with gifts. Educational establishments can teach The Golden Rule of ethics “Do to others as you would have them do to you!”, but only family can teach the attitude to it and how to apply the rule in real life.

A teacher (aged 51-60) believes that a person`s attitude is influenced by one`s family and its positive example. As regards following occupational health and safety requirements, my workplace both at home and at work has not been set up according to ergonomic requirements. Can I serve as an example to my family and students on how to build a positive attitude? Of course not! It is hard to be a pedant, wanting to do everything on time and conscientiously, due to bureaucracy we start having stress, and face emotional burnout. As I want to do my duties on time, I spend a lot of time at a computer, which affects my health. Although there are just five years left to my retirement I start considering a job change (which of course is very difficult), or even stop working and focus on my private farmstead . In our country, a large number of people have higher education, which is a very positive tendency, but how many of them work in their profession. People of my age regardless their education and experience are rarely required in the labor market. Therefore, if you have a job, then regardless of the layout of the workplace and busy schedules, people choose to work, even though they think health is a core value.

Occupational health and safety specialist (aged 31-40) indicates if since childhood a child has been brought up to think and do everything with positive attitude to life values, and is used to assess priorities in his life, then these attitudes cannot be affected and changed by other people point of view. Occupational health and safety and civil protection issues have to be discussed already in the early childhood. Preparing children to school, we buy him a desk where he will do his homework, but do we

pay attention to whether it meets ergonomic requirements? The same applies to technological equipment - computers. At school our children sit at the desks which do not meet their height parameters. The same applies to setting up a workplace and provisions related to occupational health and safety and civil protection. If an employer has not received any information about the need to follow ergonomic rules why would he do differently in his company? He follows a principle - why to do if you may avoid doing that.

A psychologist (aged 31-40) thinks, that it is not possible to change attitude of all individuals, because there are also confirmed sceptics and conservatives. It is easier to convince people by giving real life examples not just speaking. Apart from educating and teaching in families, kindergartens, at schools and work we also have to follow different requirements in different places, and only then we can expect to have some changes in attitudes, but again not in all people. Few people learn from mistakes made by others. When having injuries or health problems, people start to think of changing something to avoid the repetition of the situation.

Conclusions

Evaluating the findings in the identified sources, and the author`s long-term unstructured observations it has been found that:

- wellness is affected by processes in social, occupational, spiritual, physical, intellectual and emotional dimensions;
- workplace wellness is any workplace health promotion activity or organizational policy designed to support healthy behaviour in the workplace and to improve health outcomes;
- a safe and healthy behaviour in the workplace significantly affects attitudes towards occupational health and safety, that have become personally important values, family and self-experience play an important role in their formation;
- cognitive and affective components of behaviour do not always match with behaviour;
- an essential element of a positive attitude is a desire to use the acquired experience and curiosity;
- sustainable education program that will maintain lasting behaviour and successful workplace wellness solutions.

By evaluating the results of the interviews, it was found that according to the respondents:

- health is regarded as one of the key values, but most people do not want to acquire and use knowledge in occupational health and safety and civil protection in their everyday life, to promote health maintenance, this becomes essential mainly in cases of health problems;
- company directors often have other priorities than setting up an ergonomically correct workplace;
- in strained and intensive work ergonomic recommendations are frequently ignored;
- attitude towards occupational health and safety is affected by self-experience, which originally forms in a family, positive and negative examples given by occupational health and safety specialists and medical professionals, traumas and health problems, and regular updating of the knowledge on occupational health and safety.

Further studies are essential to develop and approve a sustainable education program suitable for Latvia that will maintain lasting behaviour and successful workplace wellness solutions.

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Operational experience of support groups at educatioal institutions in Latvia

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Abstract: Adult learning may be implemented as formal, informal and nonformal learning. All of the said types merely complement each other. Thus a diversity of content, form and methodology in learning is provided along with versatile learning achievements on the part of the participants. In order to implement substantial changes within the pedagogical process, one is required to implement forms of further education that expands the social interaction experience of teachers. Such opportunity is provided by informal learning. It is based on the work within peer support groups. The operation modes of peer support groups and the types of formation may be different. One employee may simultaneously take part in a number of support groups. The task of the group is to assist the individual in solving an urgent issue of such individual, so he/she could obtain new ideas and test them in practice. Peer support groups are generally guides by the two following principles: 1) learning takes places together with others and with the help of others; 2) learning is based on a problem that is common and urgent to all participants. The analysis on the experience of schools in Latvia shows that working groups are being formed, however, peer support groups as a specific type of group and the opportunities thereof, in the further education of teachers is a little known and seldom used concept.
Keywords: further education, methodological work, peer support group

Introduction

Peer support groups are a widely popular form of work in a learning-capable organisation. In order to complement the learning traditions of educational institution employees and promote a sustainable existence of the institution, it is highly important to exert determined efforts to organise peer support groups and facilitate the operation thereof. The aim of the present article is to provide a theoretical description of peer support groups and observe the experience of use among schools in Latvia. Materials and Methods: Literature and empirical data obtained via questionnaires and discussion in Latvian schools from 2006 - 2012 were analysed in the framework of the present article.

Methodology

Materials and Methods: Literature and empirical data obtained via questionnaires and discussion in Latvian schools from 2006 - 2012 were analysed in the framework of the present article.

Results and Discussion

Further education is one of the directions for lifelong and adult learning. Today, adult learning manifests itself in the following manner:

- formal learning (takes place at an educational institution in accordance with the specific programme. A document certifying the education was acquired in issued at the end of the Programme in one of the following forms: diploma, certificate etc.)
- informal learning (most often at one's place of employment. In most cases it is done either in large or small groups. No document is issued for such type of learning, but nevertheless it may be included in one's resume);
- nonformal learning (this type of learning often takes places without one realising it amongst the various activities of one's daily routine).

It is important for the development of any organisation as well as for that of its employees that all three types of learning are included in the further education system and thus complement each other. The hierarchy of principal learning areas plays a key role in adult further learning. The theoretical basis of such hierarchy his formed by the learning pyramid (Figure 1). Such pyramid has three levels, each of which is crucially important to and influential in the development of the region, specific institution and each employee:

1. company or organisation level;
2. inter-company level;
3. regional level. (Land, 2009)

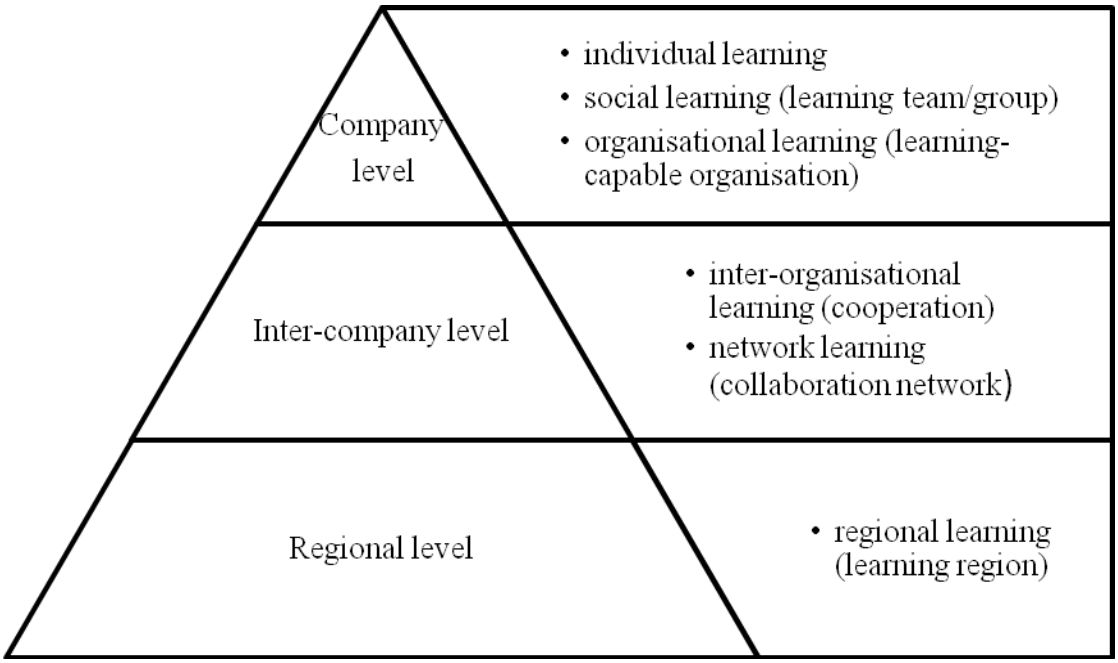

Figure 1. Learning Pyramid

Various types of studies and learning may take place at each level: individual, social, inter-organisational, network etc. In the meantime various study and learning opportunities may be offered which traditionally form a part of qualification improvement process. It promotes a development of the organization at a number of levels simultaneously. Depending of the level, at which learning takes place, different areas and levels of operation are influenced, as well as the validity and efficacy of the learning process may differ. Each level takes advantage of different study models and learning tools. Thus a diversity of content, form and methodology in learning is provided along with versatile learning achievements on the part of the participants.

Opportunities of learning and the influence thereof may be observed at various levels: global, regional, group and individual. The analysis of works from various researchers (Oderheim, 2010; Montano, 2005: Kalve, 2012) allows one to emphasise the characteristics of each level (Figure 2).

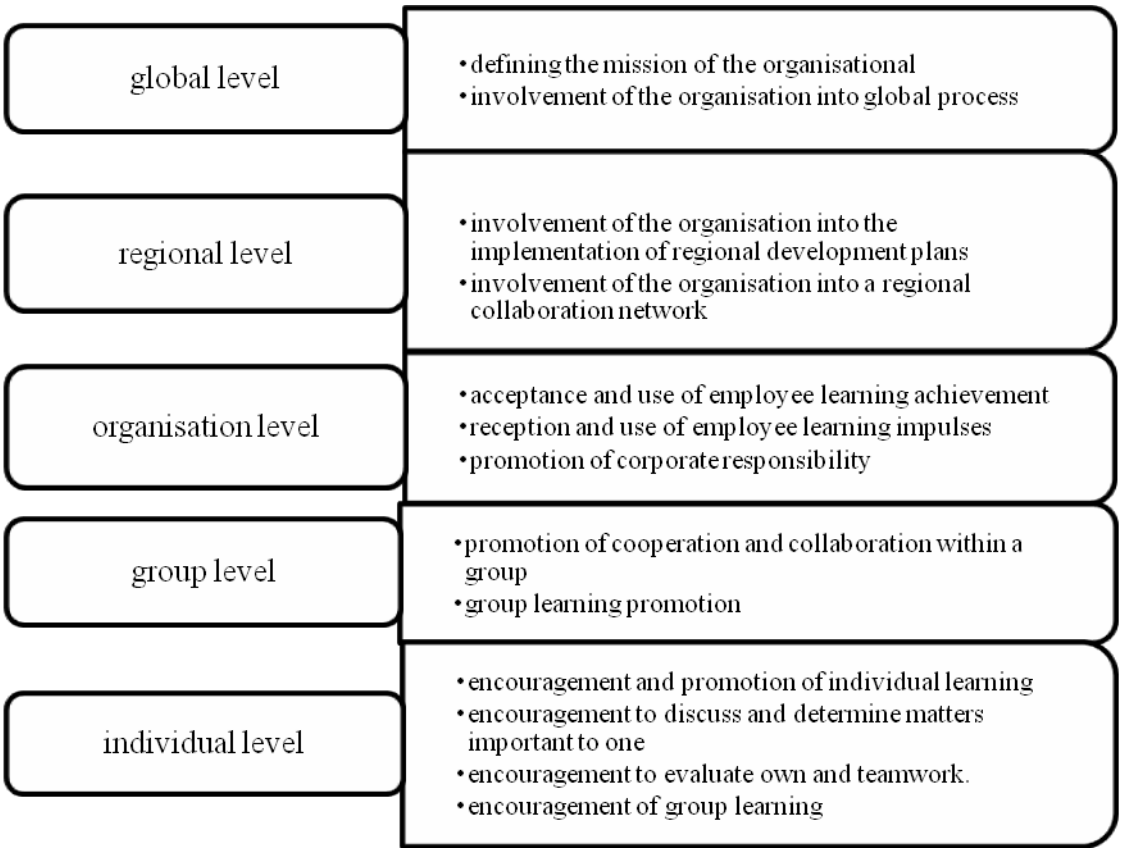

Figure 2. Influence of informal learning

All three types of learning (formal, informal, nonformal) influences teacher's qualification and one's achievements at work. However, teacher surveys conducted at Latvian schools from 2006 - 2012 show that Latvian teachers consider various qualification or further education courses at the primary types of education thus giving preference to formal education. During interviews teachers indicate that such attitude is caused by primary requirements that are set forth further education of teachers because only such courses offer an education certificate which approves the number of lessons attended because this effectively is the only way for the teacher to prove that he/she has improves one's professional level.

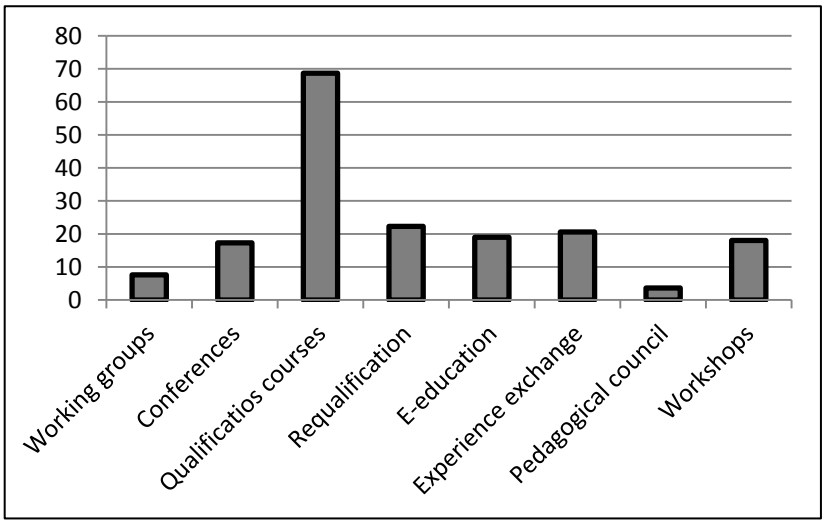

Figure 3. Teacher learning priorities

In the meantime with the statement of courses being the principal form of further education, some teachers argue that a number of other forms of further education are more effective and important to the professional development of the teacher. For example, work with various projects, supervision of

student research papers and others, because a teacher that learns together with its students becomes an example and a genuine authority in the eyes of the students.
In order to implement substantial changes in the pedagogical process, one is required to implement such forms of further educations that expand opportunities and experience of teachers' social interaction. Such opportunities are offered by the aforementioned informal learning. It is based on work within peer support groups which particularly manifests itself in self-organisation of learning as well as it ensures cooperation. Both qualities are considered to be features of good and modern learning (Kāposta, 2012).

Depending on the objective and the content of the task at hand, peer support groups may be:

- permanent they are long-term groups with a stable set of members. Over time, such groups may become teams where participants have permanent roles and division of functions. One of the most common examples for such groups in the school environment are methodological commissions and managerial teams.
- temporary - formed for implementation of a specific project. The make-up of the members in such groups for each project may be different and the duration of operation of the groups is also limited: as soon as the task for the purpose of which the group was created is completed, the group is disbanded.

The formation of peer support groups may also vary:

- administrative or formal. The group is formed as per the direction of the head of institution. The head not only sets forth group but also determines the members of the group and often appoints the leader of such group. Groups that are created in the above manner observe a number of formal conditions and procedures during the course of their operation, including, working planning harmonised with the administration, recording of all activities, a strict reporting system etc.
- voluntary. Such group is formed via a mutual cooperation between the employees. The objectives and task of the group are set by the participants of the group themselves. The work and atmosphere within such group is of a voluntary nature regulated merely by agreements between the members. It is possible that the make-up of the group changes do to biased reasons in the course of performing the task.

One person may simultaneously take part in a number of peer support groups, but often enough, such person implements a different function in each of them. Thus the social experience of the employees is expanded

Finnish researchers Ahokas, Alamaa, Hansen, Johansson and others (Peer-group Mentoring…, 2012) describe and analyse a number of areas of application for peer support groups in the informal further education of teachers:

- promotion of new teacher adaptation;
- promotion of school's corporate governance;
- improvement of specific areas in teacher's professional competence.
- improvement of multi-professional competences.

Thus peer support groups constitutes a social form of methodological work implementation with a wide range of application.

Finnish researchers Aspfor, Heikinen, Landenmaa (2012) also define peer support groups as follows:

- common responsibility in the improvement of each other's competences;
- interaction of expertise and mutual dependency;
- diverse interaction: diverse experience;
- various opinions;
- various basic knowledge;
- individual responsibility in the improvement of own competences and learning (an investment that provides an additional contribution to the support group);
- responsibility of the support group's internal operation;
- self-assessment of the support group.

The task of the group is to assist the individual in solving a urgent issue of such individual, so he/she could obtain new ideas and test them in practice.
The operation of peer support groups are guided by the following principles:

- learning takes places together with others and with the use of assistance of others;
- the learning is based on a problem common and urgent to everyone involved.

The work of the peer support group yields a:

- solution to the specific problem;
- understanding of problem solving is obtained or improved;
- participants in the group have come to know themselves and other participants better.

It is obvious that some of the aforementioned parameters are applicable to any group but there are also characteristics that are only true for peer support groups.

In the context of Latvian teachers it must be said that employees of Latvian schools (heads and teachers) are not always aware of the definition (Figure 4) of the term "peer support group" (there was a sufficient number of survey participants who had not known the term before) and the opportunities it offers in terms of the teacher further education (Figure 5).

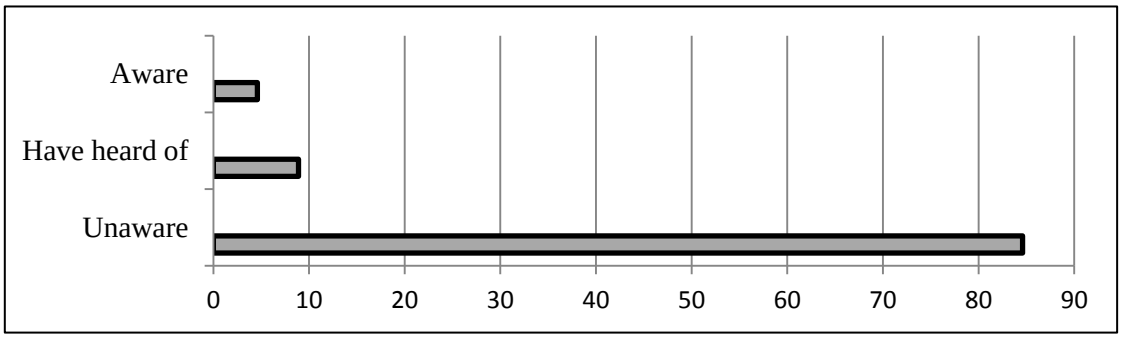

Figure 4. Awareness of peer support groups among employees of Latvian schools

The analysis of the Latvian theoretical guidelines and practice for schools (Krūmiņa, 2012; Šmite, 2004) shows that groups are formed with a number of purposes:

- management of educational institution's methodological work (methodological councils; teacher council; education programme groups);
- improvement of specific teacher competence (methodological commissions)
- organisation of specific events;
- search of innovative ideas and implementation of such ideas into the pedagogical work.

In order to summarise teacher experience in terms of group work, teachers were offered to assess in terms of parameters that characterise peer support groups (see Figure 5). A summary of data obtained allows concluding that teachers focus on on the direct operation of the group and implementation of the tasks while little attention is given to the learning of the group and each participant individually. This verity is further emphasised by teacher responses on the results of group work. All respondents indicated that the result is the task accomplished and the quality thereof, which is not always available while working individually. But in response to the question of what is the personal benefit of working in a group, majority (~75%) of respondents revealed that they had not considered group work from such perspective before, while remainder (~20.8%) said that it has been an opportunity to hear different opinions.

Notwithstanding the fact that other research has been conducted in Latvian on organisation of group work (Akopova, 2007) along with development of various group work organisational methodologies, this aspect still enjoys relatively little attention in practice. However, only if teachers are going to know the group work opportunities and underlying mechanisms thereof, they shall be able to effectively apply them in their work and teach their students to work in a group.

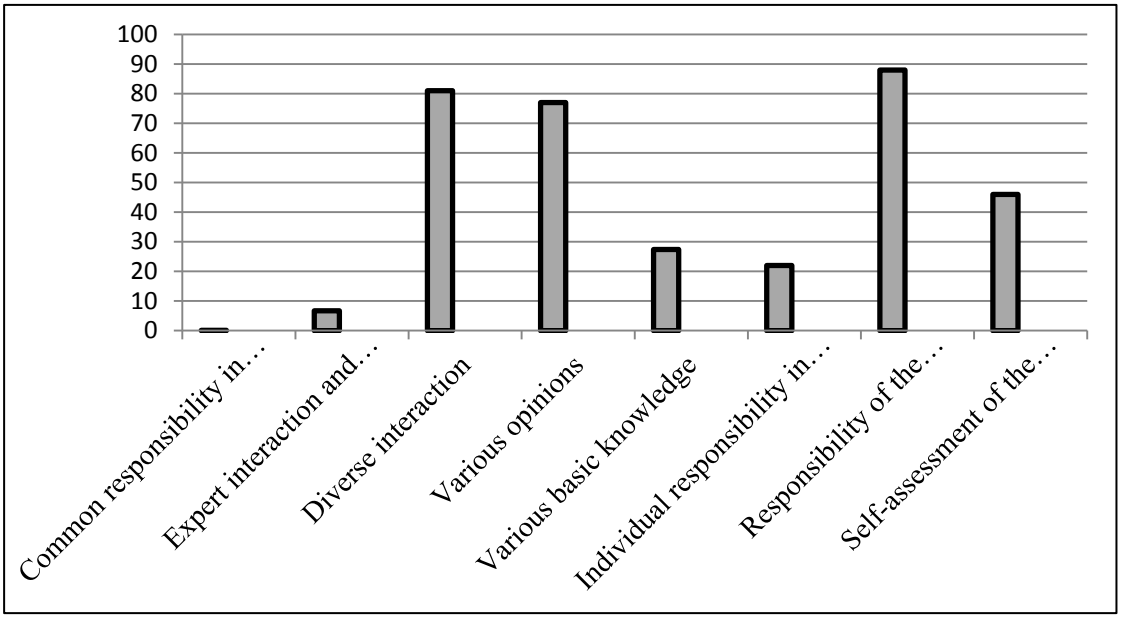

Figure 5. Awareness of the operation of peer support groups

Conclusions

- The task of the group is to assist the individual in solving a urgent issue of such individual, so he/she could obtain new ideas and test them in practice.
- While research in the field has been conducted as well as group work organisational methodologies have been developed, Latvian teachers still have low awareness of such methodologies.
- Peer support groups as one of the forms of informal learning is little known in Latvian schools.

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Pedagogical conditions for forming the research competency in future teachers of mathematics

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Abstract: In this article: (1) the necessity of studying the theoretical aspects of such phenomenon as «the research competence of the future teacher and the relevance of identifying pedagogical conditions of its formation; (2) defined the concept of the research competence of a student-mathematician, as a holistic, integrated characteristic of future teachers of mathematics, manifested its readiness to take an active research position in relation to the educational mathematical activity and to provide the best research results on the basis of theoretical analysis domestic and foreign literature on the problem of research; (3) identified pedagogical conditions of forming the research competence masters for the further development of a technique of formation of the research competence of the future teachers of mathematics, create an integrated system of professional training of a teacher. Research competence is the key basis for the development of other, more specific and subject-specific competences, as it helps students to study, allows you to become more flexible, competitive, helps to be more successful later in life, and this determines the importance of its formation.

Keywords: scientific research, research competence, pedagogical conditions.

Introduction

The independence of the Republic of Kazakhstan, the changes in socio-economic development of Kazakhstan since the 90s, calling for reform in all spheres, caused radical changes in the education system. Tasks set by the President and the Government of the Republic of Kazakhstan for universities require raising the professional training quality, reaching the world standards level. In this connection there is a necessity of preparation of competitive teachers having the required qualities, knowledge and skills, capable to independently and quickly adapt to the ever-changing information and technological environment, i.e. possessing professional competence, one of the components of which is the research competence (Назарбаев, 2012).

Modern school needs professionally competent teachers, «capable of thinking creatively», «finding non-standard solutions», «taking initiative», who are ready to teach students to search independently for information, project and research. In this regard, the main task of the higher school is to train a new generation of teachers-researchers oriented on innovative economy of knowledge. Accordingly, teaching students methods of gathering and processing of scientific information through independent research practices within the competence approach becomes the topical issue of the higher professional school.

Such a task requires purposeful formation of the research competence in Master's students conducive to the release of initiative-like activity in people, the strengthening of their needs in knowledge, as well as creating conditions for increasing the research competence of future teachers through the organization of research, innovation and research activities, introduction of modern pedagogical technologies in educational process at the Institute of Master's and PhD program.

In the previous study were developed pedagogical conditions, model, methods and tools, technologies and methods of formation of methodical competence of the future teachers of mathematics bachelor degree in (Каскатаева, 2009). The subject of further research is the process of the formation of the research competence of students in the masters, who are ready to create their methods of organization of scientific work with mathematically gifted students with the purpose of development of scientific potential of the Republic of Kazakhstan.

The aim of our study is to identify pedagogical condition of formation of the research competence graduate pedagogical University.

The hypothesis of the study: if will be identified pedagogical conditions of forming the research competence graduate pedagogical University, it will allow to develop a model, methods and tools, technologies, and method of formation of the research competence of the future teachers of mathematics to create an integrated system of professional training of a teacher.

Methodology

Research methods. To solve the set tasks was used a range of complementary methods of research, study and analysis of psychological, pedagogical, methodical literature; empirical methods (pedagogical observation, interviews, questionnaires, testing, assessment and analysis of the educational programs); modeling.

Results and discussion

The main task of the Master's programs at pedagogical university is the deepening of specialization in a specific professional direction. Training in magistracy is an important step to becoming a professional researcher, a step leading young scientist to dissertation research. That is why research is important for students enrolled in Master's program at pedagogical university.

However, the current educational practice is not conducive to the maximum encouragement of research orientation in teaching work of the future specialist, thus causing the need for the study of the theoretical aspects of such phenomenon as "the research competence of future teachers and pedagogic conditions of its formation".

Appeal to the vocabulary sources shows that they are the terms «competent», «competence», «competence».

If originated from the Latin word "competere", which is translated into Russian by such verbs as "to seek", "to approach", "comply", then under "competence" it is to understand the terms of reference of someone or the range of issues which someone is knowledgeable in. In the second case, the concept is considered as the thoroughness of knowledge, special abilities of man; it's a good subject orientation, high level of literacy, readiness for proper action. The essence of the concept of «competent» in this case is revealed when using the value of such verbs as «to legally require», «to have a right to such statements or actions», «to correspond to performing a specific job». As a result, speaking on the competence it should be emphasized that this is the possession of knowledge that allows a person to judge about anything...» (Каскатаева, 2009).

There are many disputes on this issue in pedagogical circles. Competence is considered as «complex of operations, actions, knowledge, skills, activity, independence and other qualities of a person in decision-making process», presenting by itself the «highest level of skills to develop professional activity». Competence «is the ability to realize one's capacity in life (knowledge, skills, experience, personal qualities and other) for successful creative activities in a professional and social sphere», it is a «constitutive quality of the individual or the set of characteristics, minimum experience in the given sphere» (Каскатаева, 2009, 18).

A.V. Hutorkoy notes that the competence-based approach is an approach, which focuses on education, and the outcome of education is not the amount of the learned information, but the person's ability to function in various problem situations (Хуторской, 2003, 55-61). A set of these situations depends on the specifics of life and educational situations. Competence-based approach is an approach in which the results of education are recognized significant outside education system, it requires a teacher to be flexible, mobile, to have research skills, allowing him to adapt his professionalism to the conditions of uncertainty and rapidly changing environment.

Competence-based approach attempts to contribute personal meaning in the educational process. «Personal knowledge, as well as the personal understanding, is not only the use of learning, read as some «values», but knowledge and understanding in the sense of participation of learned in one's life»

(Хуторской, 2003, 11). Personal meaning of knowledge helps a person to take competency-based solutions, thereby comply with the conditions of life. Thus, the competence-based approach in educational activity meets the requirements of socio-political life of the country.

A.V. Hutorskoy builds the correlation between the concepts as follows: competence includes a set of interrelated qualities of the person (knowledge, abilities, skills, methods of activity), tasked in relation to a specific group of objects and processes, and necessary for quality productive activity in relation to them; competence - ownership, person's possession of a competence, including his personal attitude to it and the subject of it (Хуторской, 2003).

Thus, under competence we mean the set of requirements, as under the competency - experience in implementation of activities for implementation of the specific competence. Competence is a synthesis of two components: the possession of studying person of specific set of competencies; the prevailing personal quality of a person, who had completed certain level of education, which clearly expressed the «ability to act effectively, to achieve results - effectively solve the problem» and mobility of a specialist in labor market.

Research competency manifests itself in the theoretical literacy, possession of methods of psychological and pedagogical research, the ability to aggregate empirical data, draw conclusions, to present the results of the study. «Research competency» from the standpoint of the procedural-technological approach (A.V. Hutorskoy) is considered as possession by a person of suitable research competence, which interpretes knowledge as a result of cognitive activity of a person in a particular field of science, methods, techniques of research he would have to master, in order to carry out research activities, as well as motivation and position of the researcher, his value orientations (Хуторской, 2003, 327).

The future teacher should have the following characteristics: independence and initiative, ability to overcome stereotypes. Here it should be noted the need for a high level of self-esteem so that the teacher can generate ideas, instead of waiting for them from outside. He needs not only have his creative potential, but to realize it.

As seen from the above, the personality of the teacher-researcher has very high requirements, which are manifested in complete commitment.

Research competence, according to many teachers (V.A. Bolotov, I.A. Zimnyaya, Y.V. Krivenko, S.I. Osipova, A.A. Ushakov E.V. Feskova, A.V. Hutorskoy) is the key one. In confirmation of correctness of their position, they argue the following: research competence is formed on the basis of innate quality of all living beings (including humans), called the research behavior (S.M. Bondarenko, A.N. Poddyakov, V.S. Rotenberg, A.I. Savenkov and others), as well as a complex of elements, contained in different key educational competences (Хуторской, 2003).

In the framework of the competency-based approach, this concept would include functional activity and personal (quality of a teacher) aspects. As follows from the above, the research competency of a teacher has initiative-based character and cannot be seen or be evaluated outside of pedagogical activity.

If we consider the research competency from a systems perspective, it can be argued that it is a component of professional competency» (V.A. Adolf, L.A. Golub, A.A. Derkach, V.S. Lazarev, T.A. Smolina and others), as an integral component of General and professional education» (B.S. Gershunskiy, V. Laptev and others) (Каскатаева, 2009, 38).

Y.V.Ryndina determines research competency as a whole, integral characteristics of future teachers, manifested in their readiness to take an active research position in relation to their activities and to themselves as its subject in order to transfer the semantic context of the activity from functional to transforming one (Рындина, 2011).

V.A. Slastyonin (Сластёнин, 1998) emphasizes that the structural components of the research competency must coincide with the components of research activities, and unity of theoretical and practical research skills make up the model of the research competency of a teacher.

Thus, we define the concept of «research competency» as follows: «the research competency of a Master's student studying mathematics is a coherent, integrated characteristic of future teachers of mathematics, expressing their willingness to take an active research position in relation to the educational mathematical activity and allow obtaining the best research results».

The formation of the research competency in the field of future professional activity is one of the most important objectives of all modern programs of higher professional education. «Higher education institutions should not be limited to educational functions ... should improve research activities» (Назарбаев, 2012) and it should:

- meet the topical issues of the specialty for which master's thesis is to be defended;
- be relevant, contain the scientific novelty and practical significance;
- be based on modern theoretical, methodological and technological achievements of science and practice;
- be performed with the use of modern scientific research methods;
- contain research (methodological, practical) topics for basic provisions to be defended;
- be based on best international experience in the relevant field of knowledge (Государственный общеобразательный стандарт послевузовского образования РК, 2011).

For our study, it is important to determine the research competency's place in various classifications of key competencies.

In the classification of key competencies by I.A. Zimnyaya, the research competency is included as a component of competency related to human activities (Council of Europe, 1996).

In the classification of A.V. Barannikov, the research competence is given an independent role alongside with academic, social and personal, communicative, learner-adaptive and competency in the field of organizational activities and cooperation (Баранников, 2002).

Research competency in the classification A.V. Hutorskoy is seen as an integral part of cognitive competency which includes «methodological elements, above-subject, logical activity, methods of organization of goal-setting, planning, analysis, reflection». It also serves as a component of personal self-improvement competency, aimed at mastering methods of intellectual and spiritual self-development (Хуторской, 2003, 55-61).

In a framework of the international project «Definition and selection of key competencies», implemented by the Organization for economic cooperation and development and the national institutes of educational statistics, Switzerland and the United States identified important, from our point of view, characteristics of key competencies (Баранников, 2002):

- non-algorhythymicity (i.e. the ability to solve complex non-standard tasks requiring heuristic approaches);
- multifunctionality (i.e. the ability to solve complex non-standard tasks in situations of daily life);
- universality and above-subjectness (i.e. the ability to solve complex non-standard tasks of different domains of human activity);
- multidimensionality (includes a range of intellectual skills, knowledge, methods, activities, personal qualities).

Considering the characteristics of key competencies in relation to research one it can be stated that a student, carrying out research activities, solves problems through heuristic approaches, not using the known algorithms. This expresses a non-algorhythmical research competency. The student, engaged in research work, is able to endure a research approach on different spheres of activity and apply in different situations, that confirms multifunctionality, versatility and above-subjectness of research competence. The multidimensionality of the research competency is confirmed by students use of analytical, critical, communication and other skills, personal qualities, as well as common sense. This competency is mobile, mobile, variable in any situation and in any material subject.

Thus, in the result of the theoretical analysis of domestic and foreign literature on the problem of the study we conclude that research competence is the «key», the basis for the development of other more specific and subject-specific competences, as it helps students to study, allows you to become more

flexible, competitive, helps to be more successful later in life, and this determines the importance of its formation.

Consider the pedagogical process, aimed at the formation of the research competence of future teachers of mathematics at the Department of Informatics, mathematics and Informatization of education of the Institute of master and PhD program at Kazakh National pedagogical University named after Abai.

Research competence can be formed only in research activities. Teaching staff of the Department works on scientific projects with the involvement of graduate students and doctoral students in the Department. Key concepts that define the necessary conditions for the organization of such activities of the future teachers in the KazNPU named after Abai, the following: search, independence, initiative, practical action, experiment, collaboration, contradictions, different points of view. Weekly, the Department held a scientific seminar to discuss research projects.

It is revealed that high-quality work in the development of the competences determined, first of all, professional skills of the Manager. Mainstreaming became a student research, teacher education program should provide the following task - to teach undergraduates methods, principles, forms and methods of scientific research, the fundamentals of scientific knowledge and scientific knowledge, to give an opportunity for self-actualization to the students, through the decision of tasks of a scientific nature on an individual theme. The researcher should clearly that he should receive, how and when will achieve the end result. For inclusion in the independent study of магистранту you must learn to be able to produce new knowledge, to be able to apply in practice methods of scientific research to obtain new scientific knowledge, have a modern methods of primary data collection, their processing, receipt of the original maps, schemes, diagrams, calculation of indicators and indices.

Before you begin to organize research activities undergraduates as an innovative productive technologies of training, the Manager must determine not only does he have motivated undergraduates, but does he have the possibility to create necessary conditions for the successful realization of their creative abilities. In the organization of the activities of the formation of the research competence of a student should also take into account the psychological component of pedagogic interaction. Only if the relationship, when a graduate student and head of the work on equal and respectful of the "scientific" positions of each other to create a favorable psychological microclimate, positive impact on the personality development of the student and the results of its fulfillment.

In many pedagogical and methodological works the investigation is considered almost as a pedagogical panacea, allowing to overcome many problems of modern mathematical education - from formation of a new level of understanding of educational material to the professional orientation and personal self-determination of pupils. However, own experience of educational research organization identifies a number of difficulties related to the individual characteristics of a student, that every teacher faces in the course of such activities. These are the following issues:

- investigation topic choice;
- students' self-organization features;
- dynamics of working activity during the year;
- presentation of work results.

One of the first and, in our opinion, the most significant difficulties research activity is selection of topics. I think that the choice of research topic to be approached seriously. The topic should be very interesting for both the student and the supervisor, it is desirable to even consider whether it will attract attention of a future audience during the presentation of the results. Identifying research topic causes difficulties not only for the master's student but for the teacher. These challenges can be explained by little experience of research activity of the student, and the specific features of traditional study of scientific material, when the content is presented in finished form as valid an absolute knowledge, and for the researcher it is important not only approved of knowledge, but issues, ambiguities and questions. Yet there is an important circumstance, which impairs the choice of topics, - the topical issue of work is correlation of scientific novelty and practical significance of work. Often the chosen topic is by no means new, but it is important from the position of the education and

personal development. For me, as a scientific supervisor, assistance in determining the direction of research is always a responsibility, since at this stage not only the choice of the theme of self-education and self-development of the student and the teacher is formed, but the stage for the further choice of a student is being set, which determines the desire to continue their research.

The problem of self-organization is associated with the need for a student to independently build their work. In a traditional university education the student is not planning his work, writing assignments given by a teacher. The efficiency of research as a means of personal development has a reverse side the inability of the master's student to plan and implement their own actions. It is important for a teacher, while not missing the child's interest to work because "I don't know, don't know how, I have never going to be able to do it", to maintain faith of students in their own capabilities and resources. In this situation it is helpful for students, in order to remove the fear of worthlessness, to organize regular weekly (and, if necessary, daily) public meetings and consultations, in addition effectively forming a plan of action with the definition of the indicative timelines, breakdown of each phase of the research activities on specific tasks.

The next problem is the dynamics of the labour activity of students in the course of the year. As a rule, at the beginning of the year, there is a working enthusiasm, followed by a smooth recession ended crisis, then the "plateau" activity before spring conferences, when students re-acquire high level of industry. This feature of the activity is determined by an unusual form of activity, lack of templates, algorithms, routine in many repetition of experiments, processing of sociological polls data, study of scientific literature, etc. Here again the important role is of project Manager as a motivational factor: it should be determined what was achieved in the course of work, particularly highlight the successes of the students in their research, even if these data do not comply with anticipated outcome, pay attention to the success of the development of a student as a researcher, note the development of his skills of scientific activity. Very positive effect in a moment of crisis could be participation of a student in the events, where they can share intermediate results of their study. For example, presentation at the workshop, participation in the evaluation of the results of the other master's studies. In particular, there is an opportunity now to do it on websites, presenting the discussion of the research work.

A significant problem is the presentation of results of research work of the students. An important stage in the research activity is worthy presentation of the work results, the key to success can only be a serious preparation. Experience of participation in scientific-practical conferences and competitions of research works of young scientists shows that the standard form of the organization of these events (report - evaluation of the jury - awards) gives rise to some problems. Master's student is faced with strict requirements to the presentation of their work: the minimum time (usually 5-7 minutes) should be possible to fully present the substance and effectiveness of research. The worry before the presentation is strengthened by appraisal orientation and competition in the relations between the participants of conferences and competitions. In this situation, of course, the personal experience in public speaking is important, one can know the theoretical foundations of oratory, but it is their own feelings and skills of work with the audience that allow to be successful at this final stage of the research. A teacher should review with Master's student all the moments of the performance: the text, intonation, stress, pause, possible questions from audience and answers to them, appearance, management of multimedia presentation on a computer, phrases beginning and the end of presentation, methods of regulation of nervousness, location in relation to the audience and the jury, and other. Participation in conferences and competitions has, in my opinion, another important value in the formation of research competency of a student - the possibility to analyze performance of works and speeches of other participants of these events. While listening it is useful to write, mark the interesting research topics, methodology, liked the form of speeches, and, later on, in normal circumstances, calmly discuss all aspects of their presentation and defends of other master's students' works.

Conclusions

Highlighting the significance of this research it should be noted that Master's student, carrying out research activities, solves set-out issues through heuristic approaches, not using known algorithms. That is how a non-algorhythmic nature of research competency is expressed. The student, performing research work, is able to endure a research approach on different spheres of activity and apply in

different situations, and this fact confirms multifunctionality, universatility and beyond-subject-type research competency. The multidimensionality of the research competency is confirmed by students' use of research, analytical, critical, communication and other skills, and personal qualities. This competence is mobile, variable in any situation and in any material subject.

In conclusion, we emphasize that the research competence is the basis for the development of other more specific and subject-specific competences, as it helps students to study, allows you to become more flexible, competitive, and this determines the importance of its formation.

Thus, as a result of observations and generalizations of our experience we conclude that the formation of the research competence graduate mathematicians in the educational process will be effective, if you created the following pedagogical conditions:

- the content of education is focused on the formation of readiness of Master's students studying mathematics for research activity and satisfies the principle of reality, directed to development of universal methods of cognitive activity;
- organization of educational process puts a student in an active position of the researcher, acquiring universal methods of cognitive activity, engages in critical analysis, selection and design of student-significant content of research activities;
- Teacher carries out supervision of the research activities of Master's students studying mathematics and psychological and pedagogical support based on his formed readiness for such work.

The subject of further research may be the features of process of becoming a teacher-researcher in demand in any country of the world, who are ready to create their methods of identifying scientific issues, and organization of scientific work with mathematically gifted students with the purpose of developing scientific potential of the Republic of Kazakhstan.

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Learning environment as a modifier of study motivation in learning handicraft

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Abstract. This article deals with the motivation to learn in the Handicraft lessons, analysing the part of learning environment in this process. Humans start learning at a very early age due to an inborn natural instinct of self-development. The learning process needs to result in changes in behaviour. Thus, the purpose of learning is not only to acquire knowledge and new skills, but also to evolve into a more intelligent person and to develop creativity and social skills. According to J. Biggs and C. Tang, pupils without motivation do not exist, every pupil wants to be engaged in something. In each child lies the wish to learn, thus the teacher must find the right teaching methods and opportunities to make learning materials more interesting. The research was conducted in the winter of 2012/2013. The participators were 182 pupils and 12 teachers from various urban and rural schools. As a method of data collection, a questionnaire of three notional parts was used to gather evaluations from students and teachers. Pupils evaluated their motivation to learn to learn handicraft as average, rather than good or excellent. Meanwhile, the teachers regarded the motivation to learn of the pupils as good. The pupils desire more alternatives in class and more interesting lessons; they consider the classes to be boring and monotonous, and find the learning resources are limited and in bad condition.

Key words: learning environment, motivation to learn, handicraft.

Introduction

Study environment is the set of intellectual, social, and physical environments, which surrounds pupils and where pupils develop and learn. Study environment supports pupils' development into independent and active learners, sustains the the basic values of the curriculum and the mentality of the school, as well as retains and develops the traditions of the community and the school as a whole (Põhikooli riiklik…, 2011). The learning and school environment should be designed by everyone involved in purposefully influencing pupils' learning: parents, the enterprises in the community, cultural establishments, non-governmental organisations, and of course pupils themselves (Kello, 2005). A pleasant study environment tranquillises, eliminates anxiety, provides pupils with the sense of security, stimulates the mind, and provides support, balance and completeness in the activities. Study environment should make pupils feel cosy, yet not drowsily comfortable (Kidron, 2000, 22).

As the physical study environment we generally understand the room surrounding the learner, and the study materials (Põhikooli riiklik…, 2011). In includes a modern study environment and rooms that are aesthetically fit for the age of the learners (Sarv, 2013). Social study environment refers to pupils' relationships with the people surrounding them and the values underlying these relationships. Positive relationships between pupils and teachers guarantee success. There is growing consensus that the nature and quality of children's relationship with their teacher plays a critical and central role in motivating and engaging students to learn (Wenzel, 2009; ref Becker & Luthar, 2002; Pianta, Hamre, 2003; Hall, Higgins, 2005).

The relationships between teachers and pupils are positively associated with teachers' assessments on pupils' abilities. The higher assessment teachers give to the class they teach in, the better is the teaching atmosphere. The same pattern applies also in Estonia (Loogna, Ruus, 2009, 34-36).
J. Biggs and C. Tang (2007, 31) have identified four categories of motivation to learn, which stimulate people to act and think: external, social, achievement-related, and internal motivation. The trigger for external motivation is external or material reward (Burnett, 2006, 37). Thus external motivation emerges if pupils' learning is influenced by external factors. External motivation is among other things related to the stimulating impact of the external factors of motivation: e.g., working conditions, work

environment, safety, and friendly personnel (Alas, 2008, 122). E. Krull believes (2000, 400-404) that externally prompted behaviour can be classified as motivation, which in addition to grades is also influenced by forms of rewarding, such as offering activity privileges (possibility to play games or spend time at one's own discretion), nominal rewarding (awards, displaying work), and praise.
Motivation to learn is not something that needs to be achieved prior to learning, but it is a condition already present in pupils and it needs to be maintained during the whole time they are engaged with learning and even later, when pupils are applying what they have learned. Motivation signifies (Piht, 2004, 9-16):

- convincing pupils of the importance of what they are learning, both at the present moment as well as in the future;
- instilling self-confidence in pupils regarding their ability to acquire new knowledge and skills;
- guaranteeing pupils' contentment with study assignments and good results.

In pupils' activity motifs and goals are distinguished. Motif is an internal impulse to act; goal is the result of a purposed activity. The reasons for internal motivation lie within an individual, their activity generates mental satisfaction and happiness (Burnett, 2006, 36). In such a case both progressing on the journey and reaching the destination are important for pupils. On the occasion of such motivation pupils work because they are interested, they are able to apply their knowledge and skills (Biggs, Tang, 2007, 36). The emotional side of learning is closely related to motif, because people's activity is triggered by a certain affect, when the offered activity corresponds to certain existing needs and to closer or more distant personal goals (Koort, 1993, 16-18).

In order to generate and retain motivation to learn different factors increasing and promoting the will to learn are required. Learning as the creative acquisition of knowledge and skills is dependent on different factors: what is taught; who teaches and how; and who is taught. The nature of learning depends firstly on the material that is acquired, its content and the system of how it is presented. Secondly, it depends on the methodological techniques and the experience of the teacher, his or her personal singularities and specific teaching methods. Thirdly, the study process depends on the individualities of each pupil, the individual characteristics of their mental (intellectual, emotional, volitional) development; their attitude towards learning; their disposition and interests. Fourthly, learning is dependent on the atmosphere in the class, and fifthly, on the feedback given to pupils and teachers (Krutetski, 1979, 131-132).

Methodology

The objective of the exploratory part of the paper was to determine the factors influencing pupils' motivation to learn handicraft and the importance of the study environment within it. A quantitative study was carried out as a part of the work. For data collection questionnaires were used. Questionnaires allow collecting data fast and from a large number of people in a short period of time (Hirsijärv, Remes, 2005, 182).

Questionnaires were administered to twelve schools in Estonia, involving both urban and rural schools all over the country. The target group included Grade 8 to Grade 9 pupils studying in basic school and their teachers from four rural and eight urban schools. The sample size was determined by the number of pupils present at school on the day of the study. Carrying out the questionnaire was previously agreed with the teachers. It was personally administered at the schools, but to some schools the questionnaires were sent by post. In addition to the subject teachers also head teachers of the schools were asked for permission to carry out the study. The recovery of the questionnaires was 100%. MS Office Excel was used for analysing the data.

The questionnaire consisted of eight questions. It included both multiple choice questions and open ended questions. In case of open ended questions pupils had the opportunity to make additions to what was presented in the questionnaire. Giving the respondents a chance to express their opinion was considered highly important. Two questionnaires were drawn up: one for the teachers and one for the pupils.

Analysing the study results the total of respondents – 182 – was equalled with 100% and in case of each specific question the corresponding percentage of the total was calculated. The answers given by teachers and students were compared.

Results and discussion

Pupils were asked to assess their motivation to study handicraft, reason their assessment and point out the factors, which in their opinion would help to improve their motivation.

Pupils' interest in learning handicraft

Analysing the results it became evident that most of the pupils regarded their motivation to study handicraft as average (39%) or good (35%), 15% of the respondents thought their motivation to learn was excellent and only 11% believed that their motivation is poor.

Pupils, who thought their motivation was „good" and „average", pointed out that

8. it is always a pleasure to go to the lessons, because the teacher is friendly and happy;
9. handicraft is a pleasant activity, because it is relaxing;
10. they are motivated by their parents and grandparents, who do handicraft at home and they go to each lesson with a conviction that they will learn new knowledge that might come handy in the future.

Pupils, who thought their motivation was „excellent" did handicraft also outside the school either at home or in hobby groups. Pupils make things knowing that they make these with their own hands, the product is just as they like it to be and they are very happy to wear the things they have made. They pointed out that if at home parents also do handicraft and show interest in products children have made at school, pupils' motivation to study handicraft is greater.
Pupils, who claimed that their motivation to study handicraft is poor noted that they go to each lesson with a fear, because they are afraid they are not able to do what is needed and have to redo their gauge swatches over and over again. The same pupils held the opinion that they can always go to the shops and buy the things they like, because they are not willing to wear the things they have made themselves.

Teachers hold the opinion that pupils' motivation to study handicraft is rather good (58%) and some also think that average (34 %). 8% of the respondents thought that pupils' motivation is excellent. Teachers mostly assessed motivation to learn based on pupils' grades and the extent to which they were involved in the lessons; if pupils' grades were positive and they were happy to participate in the lessons, teachers mostly gave good assessment to their motivation. However, the teachers also claimed that across classes and topics motivation to learn varies greatly. If a topic is accomplishable and interesting for the pupils and they can use modern technological techniques, pupils' interest in the work is considerably greater. If a class is learning a more traditional handicraft technique, the interest in learning is smaller. In case of younger classes (Grades 4 to 7) motivation to learn was greater, because in older classes the work load is bigger than that in the younger classes. Motivation to learn was seen as excellent mostly in rural schools, where handicraft is highly valued among pupils.

Teachers' role in shaping the motivation

In addition to pupils, the motivation to learn is highly dependent also on the teacher teaching the subject. Undoubtedly the teacher also has to be motivated and enthusiastic in order to improve pupil's motivation to learn (Landsberg, 2003, 16). Effective teachers are typically described as those who develop relationships with students that are emotionally close, safe, and trusting, that provide access to instrumental help, and that foster a more general ethos of community and varing in classrooms. (Wentzel, 2009). In addition to enthusiasm an important role is also played by teachers' high esteem in learning. (Krull, 2000, 454) Teachers' conduct is a clear message to pupils that learning is valuable, key to their self-determination and enriches their lives. Pupils have to be able to trust their teacher. Teachers' trustworthiness is an indicator that they care about pupils' self-confidence and success (Landsberg, 2003, 52). Perceived emotional support from teachers has been related significantly to students' academic performance and social functioning throughout the school-aged years (Wenzel,

2009; ref Blankemeyer, Flannery, 2002; Chang, 2003; Crosnoe, Johnson, 2004; Hughers, Cavell, 1999; Isakson, Jarvis, 1999; Murdock, Miller, 2004; Wenzel, 1994, 1997).

Analysing the relationships between teachers and pupils it became evident that half of the respondents (pupils) thought their relationship with teachers and peers was good; only 4% claimed that relationships between pupils and teachers were poor. However, in open questions none of the teachers mentioned creating a friendly atmosphere and positive relationships between teachers and pupils.

However, in teachers' opinion the external factor that influences pupils' motivation to learn the most is an incompetent teacher (24%) or a teacher, who does not master his or her subject and is inconsiderate towards pupils. Only then do they mention other factors such as the lack of study materials and poor conditions (20%), tedious lessons and using different teaching methods (20%) and negative study environment (18%). Although in pupils' opinion the fact that they are not told what and how they should do something is the most important factor, teachers do not consider it so important.

External factors as motivators for learning

Among the external factors improving motivation to learn pupils mostly emphasise the existent of a good and pleasant study environment (18%) that has modern equipments; where the relationships between pupils and teachers is friendly and positive; interesting and versatile teaching methods and study aids are used, and teachers give regular feedback and praise on the work. Additionally, pupils also consider it important to have a motivated teacher, who masters the subject well and is caring and friendly to all pupils. The questionnaire showed that in pupils' opinion an important way of improving motivation to learn is to have a choice in planning and producing things (15%). If they are told what and how they have to do something, their motivation is decreased.

In teachers' opinion the external factors, which improve pupils' motivation to study handicraft the most include a good and pleasant study environment (13%), a motivated teacher (13%) and accomplishable study assignments (13%). These are followed by teacher's positive feedback (11%), choice in planning and producing things (11%) and interesting study aids (11%).

In pupils' opinion the most important factor that decreases interest in learning is the fact that the knowledge and skills learned within handicraft lessons are useless in the future.

In assessing the physical school environment, it was not appropriate to directly compare the opinions given by teachers and pupils, because pupils, who have always studied in the same school may not know what the conditions in other schools might be like. However, teachers have seen handicraft classrooms also in other schools and have a better idea on what an ideal handicraft classroom should look like in respect to decoration and equipments, as well as the relationships within the classroom.

By estimation of teachers and pupils became evident that the learning resources, materials and equipments in the classroom are more in bad conditions in the rural areas. The classrooms of handicraft in the schools of town are more contemporary, bigger, lighting and there are more modern study materials.

If to compare the factors picking up motivation to study handicraft these are somewhat different by meaning of pupils and teachers.

Pupils pointed out the following factors that would help them improve their motivation to study handicraft:

- more interesting and exciting things should be done in the lessons;
- new and exciting techniques should be learned;
- a more spacious and bigger classroom;
- more inspiration should be obtained from the media;
- more time for completing the products should be allocated from the lesson times instead of finishing the work at home;
- more exhibitions for displaying student works should be organised;
- newer and more modern equipments should be used;
- a larger number of different teaching methods (group and team work) should be used;

- pupils should have more choice in planning and making things.

In order to improve motivation to learn teachers use the following methods:

- constant feedback during the process of work, both verbal and grades;
- tasks and practical works fit for pupils' abilities;
- choices when planning and making things, whereas only a few criteria are specified (e.g. the topic is patterning, but pupils are free to choose whether they want to make gloves, toys or a bag);
- giving a merit in the web based eKool (e-school), when a pupil has shown excellent contribution in a lesson;
- recognizing pupils' work – choosing these for exhibition display;
- showing products made by the teacher to pupils;
- taking pupils' individuality into account.

Conclusions

Although most of the pupils who participated in the study are not actively engaged in handicraft in their free time, they like the handicraft lessons at school, because these help them relax and they can do something they like and do not have to think much. Pupils tend to see their motivation towards learning handicraft rather average than good or excellent. However, teachers think that pupils' motivation to learn is good. All teacher-respondents pay attention to improving pupils' motivation to learn in the class. Teachers let pupils choose what and how they do, but unfortunately the results do not prove that teachers use different teaching methods and aids in their lessons, although in addition to a friendly atmosphere this is what pupils consider important in improving motivation to learn. Also a more spacious and bigger classroom is important and more modern equipments should be used.

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Competency – based approach to teaching foreign languages in Kazakhstan

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Abstract: The article gives a brief review of competence-based approach to education today and its underlying principles. Following this overview is an appraisal of literature that illuminates the heritage of competence-based education and contains current works that offer further understanding of the research subject matter. This section analyses and distinguishes the concepts "competence" and "competency", identifies and defines integral structure and contents of the communicative language competence, substantiates the choice of the key competences necessary for everyone, and function-orientated competences, which in their unity stipulate the successful adaptation and self-realization of a young specialist in the modern fast changing world. Although competence is an important concept in human resource development and management, there is no precise theoretical framework for competence. This article explores the definitions and usage of competence, especially in the context of training and development initiatives in Kazakhstan, seeking to clarify the concept by incorporating knowledge, skills and competences within a competence typology. The exploration focuses on the development of cross – cultural and communicative competences. At the end of the article the authors offer an innovative exploitation of linguo-cultural competence contributing to the development of methodology to teaching foreign languages, its theoretical grounding with definitions of key concepts.

Key words: competence, cross-cultural and communicative competences, linguo-cultural subcompetence, toponymy.

Introduction

Nowadays education in a broad sense has been distinguished as the investment in the development of the society. The governments and the wide public are concerned about adequacy of quality of education, training and economic, social efficiency of the means invested in education. The matter of educational contents corresponding to future demands has become a vital issue in educational reforms all over the world. The significance of flexibility, adaptability, mobility, creativity of education and life-long learning in the global, changing world is the focal point of modern national and international discussions concerning higher education and vocational training. In the light of Bologna agreements assuming the academic and professional recognition of the state diplomas within the European space, graduation of qualified specialists, capable of life-long learning and performing professional work in conditions of multicultural environment, the problem of professionally orientated communicative language competence development acquires a special meaning (Jonnaert, Barrette, Masciotra, 2005).

The essential contribution to the theoretical analysis of concepts **"competence"**, **"competency"**, withreference to young specialists in conditions of a contemporary competitive market, was made by such scientists and researchers as Hymes D., Canale M and Swain M., Bremer C. and Kohl K., Schneckenberg D. and Wildt J., Rychen D. S. and Salganik L. H., Weinert F., Nunn R., Tiļļa I., Maslo I., Maslo E., Bolotov V. A., Shishov S. E., Novikov A. M., Zimnyaya I. A., Elkonin B. D., and others.

In a number of works the concept "competency" is defined as intellectual and personal ability of an individual to practical activities, and "competence" as a contents component of the given ability in the form of knowledge, skills and aptitudes (Zimnyaya, 2003).

In I. A. Zimnyaya's opinion, 'competency always displays the actual competence' (Zimnyaya, 2003). B. D. Elkonin believes that 'competency' is a degree of a person's involvement into activity (Elkonin,

2001). S. E. Shishov considers the category of competence as a general ability based on knowledge, values, aptitudes, enabling to establish relationship between knowledge and situation, to reveal a procedure (knowledge and action), suitable for a problem.I. Tiļļa defines competence as an individual combination of abilities and experiences stipulated by opportunities to gain these (Tiļļa, 2005).

According to F. E. Weinert, in the light of terminological and conceptual disorder connected with the concepts "competence", "skill", "professionalism" and so on, it is necessary to develop an explicit definition of the concept 'competence'. F. E. Weinert tries to lay a bridge between a psychological-pedagogical concept, on the one hand, and a sociological concept on the other. He defines "competence" as a "slightly specialized system of aptitudes, abilities or skills necessary for achievement of a specific goal. It can concern both the individual abilities and the distribution of abilities within a social group or establishment" (Weinert, 2001).

At the international level, the work in the field of competences began in 1990 under the aegis of the Organization of Economic Cooperation and Development – OECD with the International interdisciplinary programme DeSeCo (Definition and Selection of Competencies: theoretical and conceptual foundations). DeSeCo defines competence as a 'system of internal mental structures and abilities assuming mobilization of knowledge, cognitive skills, practical skills, and also social and behavioural components such as attitudes, emotions, values and ethics, motivations for successful realization of activity in a particular context' (Education – Lifelong Learning … , 2002).

Higher education institution as a social institute should prepare a graduate for life. And life as a circuit of consecutive objectives and responsible choices does not imply only academic knowledge. A. A. Rean and N. V. Bordovskaya argue that development of a person as a subject of activity necessarily includes the factors which form a socially-mature person:

- development of intelligence,
- development of positive thinking, positive attitude,
- development of autonomy, responsibility,
- development of motivation leading to self-development, self-realization (Бордовская, Реан, 2000).

Educational results are, in fact, measurable, demonstrated by students (graduates) knowledge, skills and abilities after the accomplishment of an educational process, which can be expressed by means of competence.

It goes without saying that competence is not a static characteristic. Since it is inseparably connected with socialization –communication and joint activities of people, the process of its development goes on during the whole life as life-long learning and self-education, as aspiration to self-development and self-realization in the fast changing world. Professional successes, achievement of professional blossoming, and also professional longevity have already been confirmed by lots of experimental data (Rychen, Salganik …, 2001).

Methodology

This framework was proposed in the Recommendation on Key Competences for Lifelong Learning adopted by the European Parliament and the Council in December 2006 after five years of work by experts and civil servants collaborating within the Open Method of Cooperation. It defines eight key competences:

- communication in the mother tongue;
- communication in a foreign language;
- mathematical competence and basic competences in science and technology;
- digital competence;
- learning to learn;
- social and civic competence;
- sense of initiative and entrepreneurship;
- cultural awareness and expression. (The European Parliament …, 2006).

There are significant differences between countries in their way of interpreting the notion of competence and of translating it according to their national contexts. The other aspects of the implementation of the Recommendation also show great diversity. Countries differ not only in the strength of the commitment of key policy actors to the idea of competence-based education, but also in their capacities to implement complex curriculum reforms aimed at altering school level pedagogical approaches. Successful implementation can be only in those countries where there is coordinated action in the following four areas: (1) the definition of competence development-related goals and standards in national curriculum documents, (2) the alignment of national and school level assessment and evaluation approaches with these goals and standards, (3) intensive capacity building among teachers so that they become capable of adapting their classroom level practices to the new goals and standards and, particularly, (4) massive support for school level pedagogical innovations that enhance the renewal of learning environments. This also requires investing in the development of school leadership and national educational innovation systems. National assessment and evaluation systems must also be developed so that they better support educational level innovations (Halász, Michel, 2011).

An invaluable contribution to investigation and implementation of competency – based approach to teaching foreign languages in Kazakhstan was made by Salima Kunanbayeva, the rector of Kazakh Ablaikhan University of International Relations and World Languages. Her work is characterized by immensity, efficiency and in-depth content understanding of modern tasks. She is a leading expert on problems of the content and structure of foreign-language formation in Kazakhstan, the representative of education reforming programs, the coordinator of a number of European Union international programs. Author of more than 100 scientific works.

According to her investigation cross-cultural and communicative competences contain a key aspect as

linguo-cultural orientation of functionally substantial vector of competences. Within the meaning of component structure **“cross-cultural and communicative competences”**, in terms of basic theoretical principles “cognitive – linguo-cultural methodology”, we consider it’s fair to point out "cross-cultural-communicative competence" as an independent competence. The structure of “cross-cultural and communicative competences” that we assumed is presented by the following subcompetences reflecting the training system, forming cross-cultural competence-based level of linguistic skills (Figure 1).

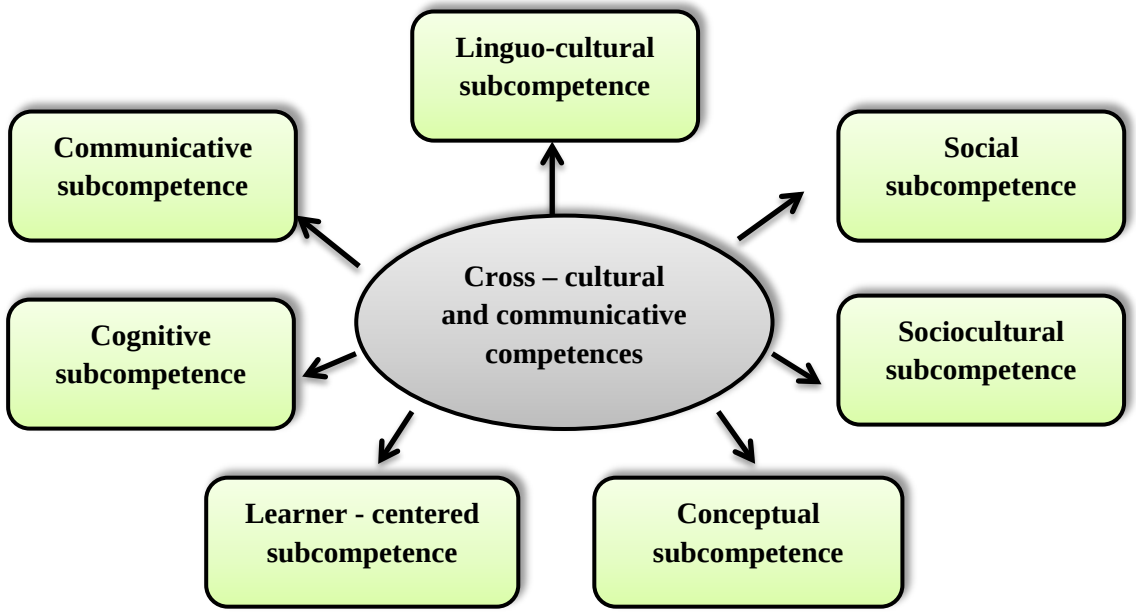

Figure 1 The structure of cross – cultural and communicative competences (adapted from Кунанбаева, 2010)

Linguo-cultural subcompetence forms personal conceptualization of the world on the basis of a peculiar culture, as linguo-cultural reflection of national language, consciousness and mentality, which puts the ground for "reconceptualisation" (Кунанбаева, 2010).

At the lessons we also can use country study material, as well as national features of geographical names and which is more interesting, even to connect them with native folklore. The country study is understood as a cultural study focused on tasks and requirements of learning a foreign language (Швейцер, 1976). Toponyms are the integral part of background knowledge of native speakers and culture bearers, within the national history, history of settling and development of the territory, which is reflected like in the mirror. Therefore, this branch of linguistics traditionally draws attention not only philologists, but also historians, ethnographers, geographers etc. (Никонов, Тащицкий 1961). **Toponymy** is the study of place names (toponyms), their origins, meanings, use and typology. Toponym is the general term for any place or geographical entity. Related, more specific types of toponym include hydronym for a body of water and oronym for a mountain or hill. Place names provide the most useful geographical reference system in the world (Томахин, 1982).

Toponyms and hydronyms carry different linguistic, cultural and historical information. For example, at the lesson we can choose themes dealing with space, spaceships or cosmodromes. We know for certain that Baikonur is a city of republic and world significance, which is located in Kazakhstan on the right bank of the Syr-Darya river, rented and administered by the Russian Federation. It was constructed to service the Baikonur Cosmodrome. According to various sources the name means in Kazakh either "the master with the light brown hair", or "brown-rich" (the area was known to be rich in brownish copper). But if we refer to **toponymic folklore**, there's a story we inherit for generation:

once upon a time the settlement, which inhabited the banks of the river Syr-Darya, was overtaken by great Famine, all the cattle died out. That's why the leader decided to marry his daughter Konur to a rich man. Her husband was very prosperous man and the land where she was sent was very fertile. She helped her dear land to get over the disastrous Famine, as she was very generous, kind and devoted to her people. According to the rich land and the name of the girl, this place was called "Baikonur", as the word "bai" means "rich" in the Kazakh language and we can translate this toponym as "rich Konur". Each learner separately, and all our state as a whole are interested today in the practical mastering of a foreign language providing expansion into the world market and uniting with world culture (Халықтық ономастика, 2005).

Results and Discussion

According to the conception of developing educational system of Kazakhstan on modern lines, such issues as communicative teaching of foreign languages, which are oriented to reach practical effects, are of paramount importance. All branches of professional state education standard involve a foreign subject, which aims to form and develop communicative competence of an expert. Future professional is a graduate, who extensively has a hand in vocational training in a foreign language which covers the spheres of science, technology, production and education. Mastering the communicative competence means for the student not just having a better command of language, but breaking of communicative barriers. The achievement of language competence helps to realize personal and business contacts in order to satisfy professional necessities, self – education and self – improvement.

In our opinion the more appropriate and shorter definitions to the terms are as following: "competency" is an ability of a person to do practical activities, and "competence" is a substantial component of this ability in the form of knowledge and skills. The term "communicative competence" was entered into scientific use of linguodidactics by scientist M.N. Vyatyutnev. The scientist suggested to assume communicative competence "as a choice and implementation of programs of speech behavior depending on the ability of a person to be guided in different communicative situations; ability to classify situations depending on the subject, tasks, communicative sets arising beforehand and also during the conversation in the course of adaptation" (Вятютнев, 1977). Specifying the essence of communicative competence, N.I. Gez gives the following definition: ability of coherent use of the language in various socially determined situations (Гез, 1985).

The structure of a foreign-language communicative competence is both compounding and difficult. In obedience to the Council of Europe document (1997) the following model of communicative competence is reflected: communicative competence consists of three components – linguistic, sociolinguistic and pragmatic. The linguistic component includes phonologic, lexical, grammatical knowledge and abilities.The sociolinguistic component is determined by sociocultural conditions of the language usage and represents a link between communicative and other competences as well. Sociocultural competence assumes awareness of national specifics and cultural thought patterns of native speakers' social and speech behavior (their customs, etiquette, social stereotypes, culture and history of the country) and the ways to use them in the course of communication (Hutmacher, 1997).

In Kazakhstan in the course of foreign language teaching it is possible to use the following competency-based technologies:

- project – based learning;
- developing critical thinking through reading and writing;
- debates method, sometimes called Socratic method;
- game technology (language games, role-playing, dramatization);
- problem – solving discussions;
- interactive teaching technology (in pairs, in small groups);
- scenario and context based technology;
- module technology
- dual lessons (two teachers).

If we take the teaching goal (ability to communicate in foreign languages) as a basis, the categories of the traditional language description (grammar, vocabulary, pronunciation, spelling, etc.) will be insufficient. The functional aspect of the language system is of higher priority. For example:

- realization strategy (what, how much and with what reason should one realize or understand?);
- speech intentions (assessment of speech situation and selection of language means);
- types of texts (what types of texts are characteristic for understanding?);
- non – language means (gestures, facial expression, accents and intonations as "bearing some meaning").

In Kazakhstan teaching of foreign languages as a means of international communication is of great tendency. It can be reached by the virtue of:

- formation and development of basic communicative abilities in the main types of speech activity;
- implementation of communicative - speech skills within foreign-language environment of the countries of a learning language (in the frame of studying themes and situations);
- improvement of all components of a foreign-language communicative competence;
- sociocultural development of students in the context of European and world culture by means of cross - cultural, cultural and linguo-cultural material.

Communicative competence involves the following major abilities:

- to read and understand simple, authentic texts (understanding the main idea together with a full comprehension);
- to communicate orally in standard situations, such as educational, cultural, household matters;
- briefly introduce oneself, describe environment, retell, express opinion;
- to express some simple information in the written form (e.g. letter).

The minimum level of communicative competence of the state educational standard for foreign languages is determined in this way (Кулибаева, 2006).

Conclusion

- In modern methodology there is no universal method of teaching a foreign language. Thus, it is necessary to combine various techniques depending on the purposes, conditions of training

and other factors. The preference is given to the learner – centered approach, which stimulate creative activity and increase motivation to foreign language learning.

- The main goal of teaching becomes the ability "to communicate in a foreign language". The content of teaching a foreign language is focused on the formation and development of all components of communicative competence: speaking skills and abilities, which are created on the basis of language, linguo-cultural knowledge and country studies.
- Language competence and its making part, such as grammatical skills and abilities, take a leading place in the course of achievement of the main goal of teaching a foreign language is that the ability to communicate in a foreign language. It is indisputable that communication is possible only with the presence of the language competence, which is based on mastering grammatical skills and abilities.
- Communicative competence appears to be of prior purpose. At the same time foreign language is just a mean, which gives an opportunity to get and show ones cultural level, an ability to think, create, evaluate another person's thought, creativity or in other words to make communication possible. Therefore, among different techniques of mastering a foreign language, the preference is given to the ones which possess a developing potential: provoking thoughts, enriching feelings, improving the culture of communication and social behavior as a whole.
- Linguo-cultural subcompetence as a part of cross-cultural and communicative competences makes personal conceptualization of the world on the basis of a certain culture, as linguo-cultural reflection of national language, consciousness and mentality. That is why it is also important to use some country study material, as well as national peculiarities of geographical names (toponyms) and which is more entertaining is the connection with native folklore (toponymic folklore). Place names provide the most useful geographical reference system in the world. Toponyms and hydronyms carry different linguistic, cultural and historical information. That will make the lessons more interesting, stimulate the students to learn a foreign language independently, motivate them to travel a lot and use the language for communication.

We can judge about the efficiency, effectiveness and success of the educational process only by the final result, by students' level of achievement. If one of the individual results is lacking behind, it will pull backwards the success of the whole group and, eventually, show a lower functional level of the learning system. The educational process is distinguished by its functional mobility and flexibility, which allows at any time to introduce a regulating factor by changing any functional element of the process. Comparing a predetermined purposeful result with an actual interim result, the system can rearrange its activities at any stage, at any time to amend individual intermediate deflections or deviations to avoid the destruction of the whole system.

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Self- assessment in learning process at basic school

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Abstract: The concept of self-assessment, the role, function and place in the learning process are explained in this article. Used self-assessment methods are listed in the article. A study is done on the following subjects: how the 9th grade students' of Jelgava Secondary School No. 4 self-assessment skills have changed in 4 years. The results show that the self-assessment skills development has contributed the improvement of learning outcomes. The aim is to raise the importance of self-assessment in teaching at basic school as an essential component of high quality education.

Keywords: self- assessment, learning process at basic school.

Introduction

The goal of education is to promote the development of such a personality who can solve his/her life problems independently, effectively and proficiently, and who is capable to learn with a purpose to develop himself/herself and in his/her professional field. Acquiring sustainable and operative knowledge and skills is one of the most important objectives in acquisition of learning content. Students' learning achievement assessment is based on learning activities, while evaluation is related not only to learning outcomes, but also to a learning process.

Learners in the 21st century must take charge of their own learning in order to be able to sort through and make sense of the overwhelming amount of available information and use the information to fulfill personal and academic needs. Both the "what" and the "how" of learning have become so complex in today's global society that learners must make constant decisions throughout their own learning process. These decisions are based on self-assessment, the cornerstone of independence in learning (Self-assessment strategies, 2008).

Modern Education introduces a new concept of Assessment for Learning. This idea represents Assessment Reform Group (1999, 2002). The Group describes this concept as: students and teachers to use evidence-gathering and interpretation process to determine what the students have learned what they should learn, and how best to do it. Assessment for Learning improve learning process, exploring learning opportunities and displays the next steps which must be taken in order to facilitate the learning process, focusing on the learning and teaching process dynamics. According to W. Harlen's (2007a,b) direction „*Assessment for Learning*" aims to support learning, continuously develop pupils' ability to evaluate their own learning activities, it means to develop skills for self-assessment.

This means that the assessment should be viewed as a strategy that supports and stimulates learning (Pridāne, 2006, 88). Only the analysis and regulation of knowledge and skills acquired correspond to a modern and high-quality education, in which assessment is becoming rather the instrument of learning management and development than the instrument of control (Lanka, Lapiņa, 2006).

Assessment of students has been in existence since the school beginnings. However self-assessment is discussed as a pedagogy component more recently. Costa A. L., Kallik B. (2003) points out that the assessment destination is going to give learners the opportunity to self-assess. A significant opinion of contemporary pedagogy and psychology is as follows: in order to bring about a change of personality's self-respect it is important to learn to carry out self-assessment, it means to reflect on your learning. Introduction of experience and self-directed learning refers to the need for self-assessment and is directed so that students are becoming more aware of their own learning, and thus are able to manage it better (Brown, 1999).

Self- assessment in learning and teaching process is mainly connected with possibilities for self-realization in a significant way. The goal of student self-evaluation is to promote formation of shared responsibility for their learning outcomes.

Methodology

In the theoretical study explanation of the concepts "self-assessment" is given. Self-assessment functions and their place in learning process are discussed. The importance of self-development of the personality, motivation for learning, student ownership of their learning outcomes, and recommendations for self-assessment skills and techniques for use in basic school are emphasized in the paper.

A practical study has been carried out in Jelgava Secondary School No. 4. In a practical study it is found out how students' self-assessment skills have been changed in 4 years (from the 6th - 9th class). The study was used to carry out the final inspection work carried out by students' self-assessment of the subject "Home Economics and Technology." Students' self-assessment is compared to teacher's assessment.

The author's experience and educational outcomes of many years has shown that students have improved their self-assessment skills. In a practical study to follow up if introduction of regular self-assessment in learning contributes to the outcomes of learning process. Therefor is studied and compared mutually the dynamics of four years final tests. The data are summarized in two tables.

The results obtained support the author's point of view.

Results and discussion

There are concepts of *Self-Esteem, Self- Evaluation* and *Self-Assessment* used in pedagogy and psychology. Getting acquainted with these terms in scientific research context it is admittedly that they are commonly used as synonyms. Yet, there are significant differences among them.

The explanation of the concept of *Self-Evaluation* can be found in Explanatory Dictionary of Pedagogic Terms (Pedagoģijas terminu…, 2000, 124). It is a process, in which the person is evaluating him-/herself, the importance of his/her actions, deficiencies and further perspective in detail. *Self-Evaluation* is important in planning further individual actions.

The main functions of *Self- evaluation* are the following:

- the constructive (the facts gathering, storing information, self-controlling of one's work, comparison of it with the given criteria),
- the mustering Oneself (the assessment and conclusions about the still to be covered things, analysis of one' s actions, attitudes and behaviours),
- the projecting (balance of probabilities, setting the goals, planning actions).

In the opinion of the author, the concept of self- assessment can be used as synonyms.

Definition of **self-assessment** in British and World English in Oxford dictionary is- assessment or evaluation of oneself or one's actions and attitudes, in particular, of one's performance at a job or learning task considered in relation to an objective standard. (Oxford Dictionaries…, 2013).

Self-assessment is the evaluation of the person's personality, opportunities and place in her/his life. It is a fundamental trait of a personality that establishes relationships with other people. Hahele R. (2006) believes that self-assessment is a condition of the self- directed lifelong education, and it is forming individually, providing means for self- improvement and extending of one's ideas. Students' self-assessment is an individual system of evaluative activity for self- improvement and extending one's ideas, in order to acquire the desired or expected results. The process of self-assessment results in the motion from the set objectives and tasks towards the learning outcomes and progress. By assessing the quality of his/her own learning the student improves his/her learning results.

According to Andersone R. (2011), self-assessment is a pedagogical tool for promotion of an adequate self-evaluation. This may come as evaluative activity and a necessary part of the learning process, as well as reflection, that promotes awareness of the objectives put forward by the student to identify the current situation and improve the learning process, make adjustments.

Fisher R. relates self-assessment to self-analysis. It can help students to acquire a better understanding of their own life and estimate themselves more objectively. Self- assessment is necessary not only for

helping the students to discover the aspects in which they succeed, but also for formulating and being aware of their weaknesses (Fišers, 2005).

According to the theoretical research, Hahele R. (2006) has established the primary definition of self-assessment: "Students' self-assessment is students' evaluation of their learning by reflection."
It is indicated in the Instructions about National Education Standard of Basic Education and Curriculum of Basic Education (Noteikumi par valsts...,2013) the assessment of students' learning outcomes form up in learning process consisting of three types of valuation:

- self- assessment,
- mutual evaluation,
- teacher's assessment.

According to the Standard's requirements, the evaluators may be the administration of school, parents, experts, state and local authorities (external evaluation), classmates, teachers (internal evaluation) and also the student him-/herself. The question is - How can students assesses their own learning outcomes?

There is an interesting experience in Switzerland in this matter (Untersetzungshilfen zum Lehrplan Volkschule, 1996). The self-assessment skills are built up in every lesson by cooperation of the teacher and student in developing an appropriate framework.

It is important for students to learn how to assess not only final learning outcomes but also the process and effectiveness of their learning (Lanka, Lapiņa, 2006.) These findings are related to statements of teachers and psychologists which state that the assessment is one of the stimulators in the development of a personality. Acquiring the knowledge is a process, activity and conscious action, including the motivation, objectives, means and the results that help in fostering students' self-assessment, in providing useful guidance of thoughts about learning (Fišers, 2005), in giving the opportunities to students to assess themselves (Prets, 2000) and is directed to students' self- awareness of their own learning and ability to conduct it better (Brown, 1999).

Hahele R. (2006) draws the attention of teachers to the fact that still today students are not used to think and evaluate their work and the acquired knowledge as the result of it in the process of learning. Role of the teacher is to motivate students, guide them towards the best possible results, help them with setting the learning objectives, realize them and assess the acquired outcomes (Maslo, 2006.), analyse their mistakes and failures, compare their learning outcomes. This experience can appear being useful later on in evaluating and assessing the others.

Students have to be prepared for an objective self-assessment; they have to obtain the above mentioned experience. Self-assessment skills have to be built up during every lesson. This facilitates students' independency, positive attitude towards learning and motivates them to work (Aherman, 1992).

So, a significant part in developing self -assessment skills belongs to the cooperation of the teacher and student. Teaching and learning that is directed towards cooperation require the choice of such methods that emphasize shared knowledge and decision-making. The teacher has to elaborate the assessment strategies that give students the opportunity to:

- reflect on their own achievements (it can be done getting involved in different activities that help to set objectives, plan, control, assess one' s activity and learning outcomes and finally arouses also self-confidence),
- coordinate a long term planning of teacher's and students' plans.

An assessment activity can help learning if it provides information to be used as feedback by teachers and their pupils in assessing themselves and each other, to modify the teaching and learning activities in which they are engaged. Such assessment becomes formative assessment when the evidence is actually used to adapt the teaching to meet learning needs (Black, Harrison, 2002).

However, experience has shown that the teachers and students are not always ready for organizing the learning process this way. It requires highly developed skills of reflection for both students and

teachers. Reflection skills can be built up by devoting one's time to both - the consideration of one's progress and to answering questions: What have I learned today? Where do I need help? etc. One of the most fundamental questions in providing, improving and developing students' learning outcomes is the students' own responsibility for his/her own learning process. We can encourage students to set objectives for developing their own personality and plan the ways on how to reach them. When we help the students to form the awareness of their thinking and learning process, we help the students to consider the effectiveness of the strategies they use in acquiring the set objectives and goals.

Self-assessment has to be included and used for schoolwork as a regular systematic activity, teaching students to assess their thoughts and behaviour already since young age (Jansone, 1998, Fišers, 2005). If self- assessment has not been organized already since the first grade, the student who is used to the assessment given by the teacher' s or others, does not even seek for self-assessment (Амонашвили, 1990).

Day-to-day assessment is an essential aspect of effective teaching. It involves the teacher or practitioner focusing on how learning is progressing during the lesson, determining where improvements can be made and identifying the next steps. During the lesson, we need to be listening to, observing and engaging with the children we are assessing. We can use the strategies of questioning, observing and talking with children. We can develop methods for quickly checking on children's understanding and we can also develop more sustained assessment activities that give us a particular insight into how well the children are applying what they have learned (Day-to-day assessment…, 2004).

Just as a student learner is acquiring the learning content-from the simple to the complex, also self-assessing should be performed in a specific order– from the simple to the complex. Firstly occurrence and fact- finding takes place: for example, the teacher and students discuss the course of the lesson and reflect about the lesson at the end of it; teacher compiles the information about how students have understood the subject matter of the lesson, how did they like the learning methods used in the lesson.

The next stage- explanation of the acquired facts and assessment of results- comparison with the existing standards, requirements, benchmark- the evaluation criteria prepared by the teacher or the teacher together with his/her students in advance. This contrasts with the system when the student receiving the teacher' s assessment in marks, for example, for an item made in a certain handicraft technique, often does not get to know anything about the process of the work performed and the objectives achieved.

Criteria of self- assessment are like landmarks or reference points in the process of learning (student knows the criteria already in advance and takes them into account in the process of producing his work, estimates, how much time and effort it would take in order to produce the given item or work). Thus the assessment does not depend on the relations between the teacher and the student anymore. Finally assessment of the results, predicting development and exchange, as well as planning testing of his/her own work (Gailīte, 2000,8), for example, what does the student needs to learn better in order to pass the test. The student who has learned self-assessment skills and is aware of him-/herself can reach the maximum result, because he knows what is possible and impossible for him to achieve (Pridāne, 2006), he/she is able to separate the knowledge, partial knowledge and ignorance, identify his/her skills and inability, as well as to see the perspective for his/her further development in his ignorance or in ability rather than helplessness and impotence (Jansone, 1998, 113).

Moreover, the teacher should create the situation of success to students with low self-esteem and to those who face difficulties in assessing themselves objectively. Groduma- Vīriņa D. (2009.) highlights that self-assessment is introduced in lessons for giving the students an opportunity of viewing the subjective (self- created esteem) and objective (teacher's created according to the evaluation criteria) assessment.

Critical attitude in thinking is the quality that provides the opportunity to weigh up precisely one's results, find the strengths and weaknesses in it (Ņikiforovs, 2007). There are both- the positive and negative aspects of critical attitude. If the student will think only critically, these thoughts will penetrate into one's consciousness and the student won't try to achieve higher level. However,

positive critical attitude, in its turn, is necessary, because it will stimulate students to achieve better results (Špona, Čehlova, 2004).

Self- assessment is three-directional: looking backwards at work that has been done to see how successful it was (summative assessment), looking at the present to determine the next steps (formative assessment), and looking at the future to decide what has been learned that will make the learning process more effective in the future (predictive assessment)(Self-assessment strategies, 2008). Self- assessment has got a significant role throughout all the process of acquiring the learning content, not only at the end of it. Student can get involved into self-assessment in different periods of lesson, in various contexts (Krastiņa, Pipere, 2004, 127).

Planning self-assessment during his/her class the teacher should evaluate its place in the learning process. It can be as follows:

- predictive self-assessment- before the beginning of work, lesson in order to get an idea of student`s knowledge before the introducing the new material,
- gradual self-assessment - during the work, at different stages, during the process of learning in order to collect information about the process of acquiring the new theme, material,
- definitive self-assessment- as a result of work at the end of acquiring learning content after learning the theme (Pliners, Buhvalovs, 2002, 77).

Self- assessment can be done both- orally and in written. It can be used:

- in everyday work – at the lesson, at the end of the lesson, for example, for collecting the information about the students' understanding of the new matter or during the preparation for tests;
- in tests – in order to get the information about students' assessment of their knowledge and skills in performing certain tasks;
- in formulating the concept of "I" to oneself, for example, while thinking about the career possibilities in relation to the knowledge, skills and interests acquired during crafts, technology and visual art lessons;
- in social events- in various events, contests and activities at school.

It is important that the opinion of students is heard out before the teacher's opinion has been offered. The information that would be reflected in individual achievement cards or student portfolios would be summarized after reconciling the opinions or after the test results. Self-evaluation skills should be built up by offering freedom of choice, respecting students' individual learning styles, carrying out individualized, variety (Krastiņa, Pipere, 2004).

Among the plenitude of the methods of self-assessment that can be used at every stage of education, the following methods should be mentioned: discussion, reflection, diaries, weekly assessment, assessment control sheets, questionnaires, surveys among and interviews with students, SWOT analysis, portfolios.

All these methods motivate students to analyse their work, define what they have learned, formulate what problems still exist, provide students with the opportunity to determine his/her progress. It is very important to help the students in formulating clear criteria for evaluating their work. It is advisable that they were clear to students already before the beginning of learning. For example, before acquiring the new theme in discussion about timesharing, the methods of acquiring the learning content and assessment, the teacher defines the requirements of standard for acquiring the learning content and agrees on the form of the test together with students.

In order to gain information about the fact if students have acquired compliant Instructions about National Education Standard (Noteikumi par valsts…, 2013) knowledge and skills in the subject "Home Economics and Technology", students write a final test at the end of each school year. Knowledge and skills required in each of the topics are formulated through the levels (high, optimal, sufficient) in the A. Pridane author's programme. Pupils are regularly introduced to these requirements, thus making students to assess which of the levels is to corresponding his or her knowledge and skills.

In the learning process, especially in preparation for these tests, a variety of self-assessment methods are used. More often a question and answer session on a specific topic is practiced. Frequently, the author has prepared self- assessment criteria for the knowledge and skill test content according to which students can evaluate themselves. There are also cases when the class teacher develops criteria together with the students.

In the 9th grade students write a basic education final course test in the subject "Home Economics and Technology". It is therefore very important as far as possible prepare for it. This can be done when preparing the process of being written test exam paper and then made self-assessment that allows the students to self-assess who has the knowledge and skills acquired.

The aim of the study was to determine whether and how students' self-assessment skills have changed in four years period (from 6th - 9th grade). The study compared and evaluated students' self-assessment and a teacher's assessment of the subject "Home Economics and Technology" on the final tests. The data summarized in the table No.1.

Table 1

Comparison of self-assessment by the teacher on the final examination

Grade Academic year	6. Grade 2009. /2010.			7. Grade 2010. /2011.			8. Grade 2011. /2012.			9. Grade 2012. /2013.		
Self-assessment	**h**	**l**	**e**	**h**	**l**	**e**	**h**	**l**	**e**	**h**	**l**	**e**
The number of students %	51,4	28,6	20	54,5	9,1	36,4	16,6	36,7	46,7	20,6	38	41,4

h-higher, l-lower, e-equal

The results show that the growth of dynamics of the marks that are equal (e) is obvious and statistically significant. The number of students (%), the assessment of which is equal with the teacher's mark or assessment in the 6^{th}-7^{th} grade is disparate (differs substantially) from the number of students (%) in the 8^{th}, 9^{th} grade. The number of students (%) who assess their results above the teacher' s mark in the Register, decreases substantially in the 6^{th}, 7^{th} grade in comparison with the 8^{th} , 9^{th} grade. However the number of the students (%) who assess their results below the teacher's mark in the 8^{th}, 9^{th} grade increases. Supposedly, students become much more critical with themselves.

In the study, it was examined if the results of the end-of-year tests also improve. In the table No. 2 the marks in the end of year tests that are expressed by HSC are evident. Data show positive trend-statistically significant differences between the marks in the 6^{th}, 7^{th} and 8^{th}, 9^{th} grades. The average marks in the 6^{th}, 7^{th} grade are for one mark lower than in the 8^{th}, 9^{th} grades.

Table 2

Comparison of the final test HSC from 6^{th} till 9^{th} Grade

2009. /10- 6. Grade	2010. /11- 7. Grade	2011. /12-8. Grade	2012. /13.- 9. Grade
HSC- 0,59	HSC- 0.56	HSC- 0,7	HSC- 0.71

Conclusions

Self-assessment is an essential component of modern teaching. It is necessary to promote student ownership of their learning outcomes, be aware of their own learning and be able to manage it better.

Self-importance has also been emphasized in the new concept of high quality education *Assessment for Learning*.

As a result of self-assessment it is also possible to improve students' learning outcomes by assessing their quality of learning objectively and setting goals for improvement at the same time, The research results indicate that the average final exam score (HSC) 6., 7^{th} grade is about one mark lower than in the 8^{th} and 9^{th} grade.

Students' self-assessment skills should be obtained gradually: from the simple fact-, phenomena result- finding to more complex-assessment, explanation of the facts and results, and comparison of them with the existing standards, the requirements of the benchmark. Adequate self-assessment

enables to control the acquirement of knowledge or skills in the field, promotes purposeful planning of students` own learning in order to obtain the best possible result.

Self-assessment is essential in learning all the content in the learning process. This should be included and used in learning as a regular systematic operation with a variety of methods.

The research results demonstrate that the systematic use of self-learning, self-assessment skills improve, because the dynamic growth of identical scores is clear and statistically significant. Number of students` (%) whose assessment is equal to the teacher ratings at the $6^{th}$, $7^{th}$ grades differs significantly from the number of students` (%) at 8^{th}, 9^{th} grades.

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Evaluation of university education and its indicators

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Abstract: The paper deals with the fundamental concept in the field of the quality of education and research activities and competencies of university teacher. The teacher acquires and develops them throughout his/hers career, in the preparatory stage and in the lifelong learning. Competencies are necessary for qualified and professional performance and they create professional standard. Professional standard fulfils its purpose only when its connected with the evaluation of the teachers. To support optimal education of students then leads to the development of advanced concepts and models of staff development. The authors of the paper describe evaluation process at The Czech University of Life Sciences. Within this process opinions of students and teachers of the teaching process and implementation of the university teachers´ key competencies are analyzed.

Key words: education, competencies, professional standard, models of development, evaluation

Introduction

People are the most precious capital of every school. One of the most important factors (from the perspective of improving the quality of school work) is perfect and better utilization of the internal potential of teaching staff and other employees. Practical experience shows that school can be only as good as the people who work in it. (Světlík, 2009, 266) Armstrong's definition which states that "People and their collective skills, abilities and experience, together with their ability to use them in the interest of employers' organizations, are now seen as something that contributes significantly to the success of an organization and make a significant source of competitive advantage" (Armstrong, 2007, 35) can be applied especially in the education process.

There is necessary to apply a feedback in schools, as well as in other fields of human communication. This is such kind of management that evaluates the real, not expected activity and. In this system are implemented results of last actions. (Vybíral, 2000, 180) This phase must be done in education through monitoring and evaluation of results. Formulated objectives, chosen methods, partial results of learning, etc. must be checked. (Kalhous, Obst, 2009, 403)

The term evaluation has become one of the most frequent concepts in educational theory and practice. Pedagogical dictionary term "evaluation" is defined as "identifying, explaining the situation, the level of quality, efficiency of the education process." Self-assessment or self-evaluation are other terms which are used together with evaluation. This systematic process can be performed as by institution as by individual. Within this process, achievement of objectives is stated, based on predetermined criteria. University education is under great social pressure and closely watched by the public. For this reason, there is necessary that the quality of education in universities is demonstrable, visible to inform the public that the quality of education really exists and is available. (Slavík, 2012a, 195)

The basic term of teaching and research activities is a teacher`s competence. Competence can be understood as excellent ability. Competence expresses complex knowledge, skills, attitudes and experiences that are target categories of professional education in conditions of universities, which are still changing. (Slavík, 2012a, 74) The system of evaluation of the educational process illustrates the quality education and must be proven, visible and presented to the public. Each university should implement its evaluation. An increasing internationalization of university education underlines the need of the evaluation process.

As an example of education evaluation, a model at the Czech University of Life Sciences (CULS) is used. This process is provided by the Institute of Education and Communication (IEC) for eight years. A positive evaluation survey is the fact, that teachers don’t consider the evaluation as a negative aspect any more, but they feel it as an inspiration to improve their work and often as positive result of their

teaching quality. Many educators have concluded that it is necessary to improve their teaching and they requested for individual observations. Thanks the evaluation, there is possible to assess which of the university teacher`s competencies are not sufficiently developed and there must be implemented measures leading to their obtaining and deepening.

Methodology

A questionnaire survey method was the main method used, followed by an analysis of the results and their interpretation. The aim was to infer the causes of the detected condition. Another tool used consisted in individual observations. Six-grading scale were chosen for the evaluation of submitted items, grade 1 marked the minimum rating level (the lowest satisfaction of the respondent), grade 6 expresses the maximum level rating (highest satisfaction). Since 2005/2006 until 2011/2012, totally 579 teachers and 12.621 students were included into the survey.

Table 1

Number of teachers and students in the last three years

Year	Respondents	FEM	FAFRN	FE	FFWS	FES	ITA	IEC	CULS
2011/2012	Teachers	32	24	12	8	9	3	4	92
	Students	787	375	214	176	153	50	132	1887
2010/2011	Teachers	34	24	10	9	8	3	4	92
	Students	770	426	170	202	104	40	162	1874
2010/2009	Teachers	28	17	7	7	11	6	3	79
	Students	675	253	216	109	259	91	118	1721

Source: SLAVÍK a kol., 2012b

Table 1 shows that 92 teachers and 1887 students were selected for the evaluation of the teaching process at the CULS in the academic year 2011/2012.

Competences towards Professional Standard

The development of competences continuously leads towards the formation of professional standard (Vašutová, 2001). The complex of pedagogical competences can be divided into the following categories:

Discipline and subject competence

An educator:

- has mastered a systematic body of knowledge of specialisation in an appropriate scope and depth;
- is able to apply practical experience in the specialisation to the educational content of the subject of study;
- is able to transform knowledge of the respective scientific and technical disciplines into the educational content of the subject of study;
- is able to integrate inter-disciplinary knowledge with the subjects of study and create inter-subject links;
- is able to identify and process information in the field of specialization, and has user skills in the field of information and communication technology (ICT).

General educational competence

An educator:

- has mastered the processes and conditions of education at university on both theoretical and practical levels, combined with a deep knowledge of psychological, social and multicultural aspects;
- is able to use the context of education and understands the educational systems, and the trends in their development, related to the system of vocational education in particular;
- is able to support the development of individual qualities in the students, in their field of interest and vocation;
- has knowledge of the rights of a child and student, and respects them in educational work;
- has a high level of creativity, flexibility and adaptability for the education process.

Educational (didactic) competence

An educator:

- is able to transform the methodology of knowledge of the given discipline into the way of thinking of students in the given subject of study;
- is able to choose the most suitable methods, forms and aids for the teaching process with regard to educational goals;
- is able to use Information and Communication Technologies for the teaching process and for the support of students' learning;
- is able to lead students towards self-responsible learning.

Diagnostic and intervention competence

An educator:

- is able to use the methods of educational diagnosis in teaching on the basis of the knowledge of individual prerequisites of students and their developmental specificities, and is able to diagnose social relations in the class;
- is able to identify students with specific learning and behaviour disorders and to tailor the selection of the subject matter and teaching methods to their capabilities;
- has mastered the methods of giving guidance to gifted students;
- is able to recognize in students a social pathological manifestation such as bullying and battering, and knows the possibilities for their prevention and remedy, which he can apply;
- has a good command of methods for ensuring study discipline in the lectures and seminars and is able to solve educational situations and educational problems.

Social and communicative competence

An educator:

- has mastered the means of creating a favourable working environment (teaching climate) in lecture and seminars on the basis of the knowledge of social relations among students;
- has mastered the means of professional socialisation of students and is able to apply them in practice;
- is able to handle demanding social situations at university and outside the university and is able to help students;
- knows the possibilities and limits of the impact of out-of-school environment, peers and media on students, and is able to analyse the causes of negative attitudes and behaviour of students and to use corrective measures;
- has mastered the means of communication in education in the lecture;
- is able to apply efficient methods of communication and cooperation with parents and social partners of the university.

Management and legislation competence

An educator:

- has a basic knowledge of the legislation and other regulations and documents related to the performance of his profession, his environment and the profession for which he prepares students and is able to use them in instructional practice;
- is familiar with educational policy, has a good knowledge of the conditions and processes of functioning of a university;
- is familiar with administrative work related to keeping records of students and their educational results, and is familiar with record keeping and reporting;
- is able to develop projects on the level of an institutional cooperation, both domestic and international.

Professional and personality cultivating competence

An educator:

- has a general grasp of educational issues in philosophical, cultural, political, legal and economic fields, and is able to apply them to shape attitudes and value orientations of students;

- is able to represent his profession on the basic of mastering the principles of professional ethics, and has mastered the patterns of professional behaviour;
- has the necessary personality prerequisite for cooperation with colleagues and other members of educational staff;
- is capable of self-reflection on the basis of self-assessment and evaluation, using different entities;
- has physical resistance and physical fitness;
- has moral integrity.

Models of teachers' professional development

During the professional development of university teacher career we can realize that there are some typical steps of building pedagogical competences. It can described and simplified in the following models. (Figure1; Figure 2). Efficient professionals use both models but gradually they decrease using the rules and more they tend to improvisations. But it must be competent improvisation.

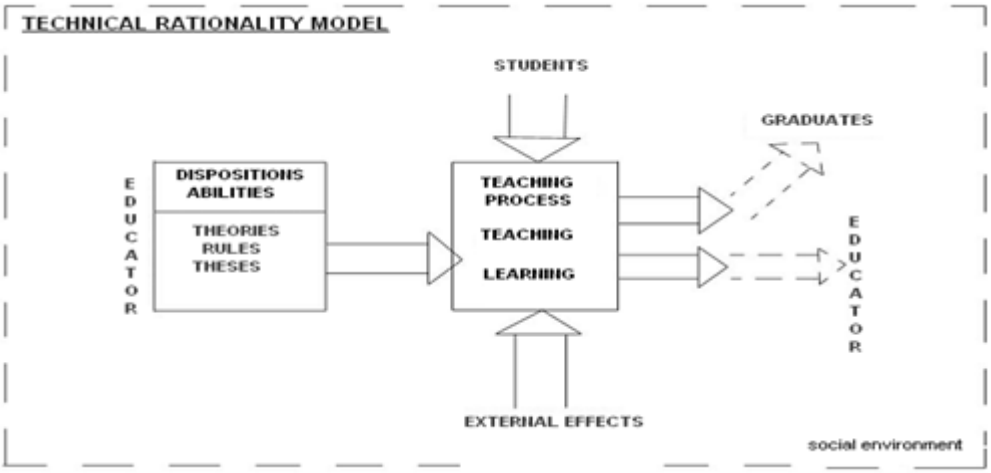

Figure 1. Thinking before acting

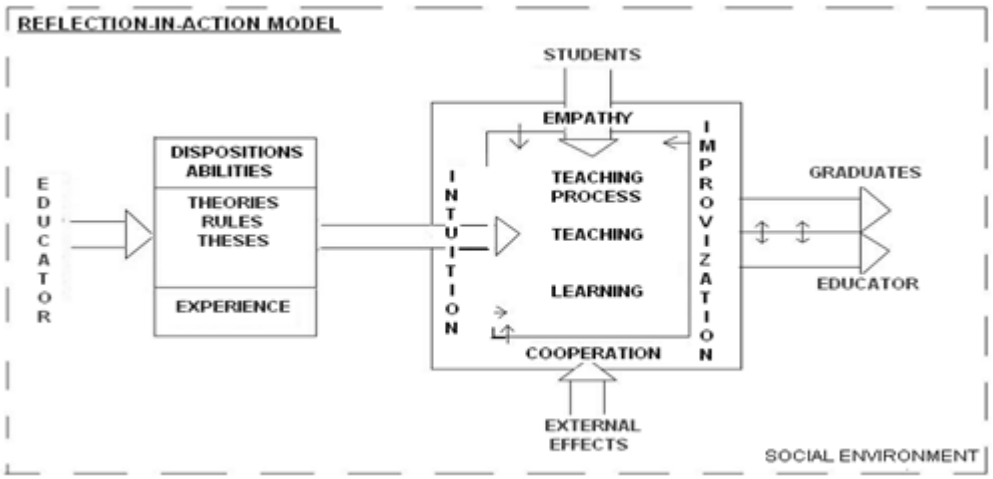

Figure 2. Thinking in reflective conversation with the situation

Results and discussion

From the very extensive results of the survey, there is a collection of those which are connected with pedagogical competencies of university teachers.

Table 2

Assessment of lectures and seminars by the CULS students (average)

Index	FEM	FAFRN	FE	FFWS	FES	ITA	IEC	CULS
A statement on the subject	4.24	4.29	4.22	4.33	4.26	4.36	5.09	4.5
Evaluation of the conditions of teaching	4.27	4.29	4.23	4.34	4.35	4.08	5.33	4.27
Opinion on the teachers´work	4.91	4.87	4.86	5.03	5.03	5.02	5.48	4.92

Source: SLAVÍK a kol., 2012b

Table 2 shows that:

- the best review of the monitored education items got views on the work of teachers (4.92), the highest average register Institute of Education and Communication (5.48), the lowest value has the Faculty of Engineering (4.86) a slightly better result was achieved by Faculty of Agrobiology, Food and Natural Resources (4.87);
- less favorably review occurs in item "A statement on the subject". The comments to the subject was the highest average value Institute of Education and Communication (5.09), the lowest Faculty of Engineering (4.22);
- when assessing the conditions of teaching, the highest averages were Institute of Education and Communication (5.33), the lowest value got the Institute of Tropical AgriSciences (4.08).

Table 3

Average results of the evaluation from the individual questionnaire items by CULS students

A statement on the subject	Lectures	Seminars	Average
1a) links with practice	4.00	3.66	3.83
1b) subject fulfils my expectations	4.44	4.29	4.37
1c) time appropriateness of including the subject in the curriculum	4.52	4.30	4.41
1d) expected level of difficulty of the subject	4.26	4.28	4.27
Evaluation of the conditions of teaching	**Lectures**	**Seminars**	**Average**
2a) informational assurance of the subject (technic.lit., textbooks)	4.11	4.23	4.17
2b) electronic study materials (e.g. Moodle) help me	3.98	3.63	3.81
2c) satisfaction with educational environment and equipment	4.72	4.51	4.62
2d) time appropriateness of including the subject in the daily schedule	4.60	4.37	4.49
Opinion on the teachers´ work	**Lectures**	**Seminars**	**Average**
3a) gives the impression of an expert in his field	5.30	5.16	5.23
3b) has the ability to attract and motivate	4.59	4.38	4.49
3c) has the ability to create a positive and friendly atmosphere	5.08	4.83	4.94
3d) is willing to devote to students	5.16	5.15	5.16
3e) gives students the opportunity to express their opinion	5.21	5.07	5.14
3f) his interpretation is understandable	5.05	4.91	4.98

Note: 1 min. satisfaction - 6 maximum satisfaction * 1 min. difficult - difficult max. 6

Source: Own processing

Table 3 shows that:

- educators of Czech University of Life Sciences in Prague strike significantly as experts in their field, the value is the highest of all surveyed items (5.23); it can be stated that in this direction they have discipline and subject competencies; another characteristic of this competence "The ability to link the teacher's knowledge of the relevant disciplines and practice" belongs to one of the lowest measured values (3.83); it is particularly troubling in practice (3.66), where connection with the practice should be enhanced;
- the willingness of teachers to devote to students is also highly evaluated (5.16); teachers thus have an average of general education competence, where they support the individual quality of each student;
- "The clarity of interpretation" is relatively highly rated (4.98); it is given by appropriately applied methodological repertoire in teaching and thus by developed educational didactic

competence; on the contrary, the low average value of items related to the benefits of electronic study materials (3.81) indicates weaknesses in applying of this competency;

- the fact that most teachers "give students the opportunity to express their own opinion" (5.14) and their "ability to create a positive and friendly atmosphere demonstrates" (4.94) a well established social **and communicative competence**.

Table 4

Opinions of the Czech University of Life Sciences Prague students on what affects the clarity of teaching in lectures and seminars (in %)

Lectures, seminars	FEM	FAFRN	FE	FFWS	FES	ITA	IEC	CULS
	%	%	%	%	%	%	%	%
The lack of knowledge from the previous study	41.88	37.84	40.96	39.88	43.26	43.73	50.08	41.44
Lack of interest in the subject	18.34	16.59	17.25	15.03	11.51	9.38	3.70	15.21
The rapid pace of the teacher	13.81	12.55	9.87	13.47	6.73	6.25	10.95	12.14
Inadequate or inappropriate way of explanation	10.5	9.52	8.21	11.96	14.18	9.38	7.25	10.22
High demands for understanding of the subject content	13.37	17.63	19.37	15.02	18.94	15.63	25.60	17.25
Impersonal, cold approach of the teacher	1.55	5.87	4.34	4.64	5.38	9.38	2.42	3.29
The problem in the teaching in foreign language	0.55	0.00	0.00	0.00	0.00	6.25	-	0.45
OVERALL	100	100	100	100	100	100	100	100

Source: SLAVÍK a kol., 2012b

Table 4 shows that:

- as main cause of difficulties with understanding of teaching, students consider the lack of specific knowledge from previous studies;
- as the next two causes, they indicate not only high demands of subjects to be understood, but even the lack of interest in the subject; this last detail is alarming, it confirms the need for **more effective motivation of students by teacher**.

For the purposes of this paper and detecting of how the teachers developed their **professional and personality cultivating competencies**, which also emphasizes self-reflection on self-assessment and evaluation by various subjects "paired items" evaluation was used in the student and teachers questionnaires.

If the value of the difference of the student (S) and teacher (P) opinion is positive, students assess this phenomenon more favourably than teacher and vice versa. The rate of reflection was observed in four comparative items, which was:

- the clarity of instruction,
- the teacher's ability to lead an interesting and motivating teaching,
- the fact that the creation of space for students' opinions and debate is made,
- the fact that it is possible to create a positive atmosphere in the classroom.

Table 5

Comparison of selected items

Item	FEM	FAFNR	FE	FFWS	FES	ITA	IEC
T: My teaching is understandable	5.28	5.25	5.42	4.75	4.78	5.33	5.00
S: His teaching is understandable	4.95	4.93	4.97	4.76	4.87	5.18	5.42
Difference S - P	-0.33	-0.32	-0.45	0.01	0.09	-0.15	0.42
T: I consider my teaching as interesting and motivating	4.92	4.92	5.25	4.75	4.56	5.00	4.75
S: He has the ability to engage and motivate	4.52	4.49	4.45	4.55	4.58	4.80	5.27
Difference S - P	-0.40	-0.43	-0.80	-0.20	0.02	-0.20	0.52
T: I create sufficient space for discussion and expression of students	5.11	5.00	5.25	5.10	5.20	5.00	5.25
S: He gives students the opportunity to express their own opinion	5.18	5.00	5.06	5.28	5.23	5.34	5.56
Difference S - P	0.07	0	-0.19	0.18	0.03	0.34	0.31
T: I am creating a positive atmosphere of cooperation with students	5.41	5.00	5.10	4.98	5.20	5.33	5.50
S: He has the ability to create a positive atmosphere	5.20	4.74	4.81	4.95	4.88	4.94	5.27
Difference S - P	-0.21	-0.26	-0.29	-0.03	-0.32	-0.39	-0.23

Source: Own processing

Table reveals that:

- Intelligibility of their own teaching seems to teachers quite high, but rather varies widely. From students´ point of view, the values of four faculties are significantly lower and two slightly higher. Except for the Institute of Education and Communication, where the value is significantly higher. It reflects a certain professional modesty of the educators at the Institute.
- For item that assessed interest and incentive effect of interpretation on students there is a high difference in comparison of the views of students, especially in Faculty of Engineering. Students do not share teachers feeling that their interpretation is interesting and motivating. The opposite situation is again at Institute of Education and Communication, where students evaluate these teacher skills better than teachers value themselves.
- The values of items in which teachers and students evaluated what is the chance to express opinion in lectures vary between individual parts of Czech University of Life Sciences the least.
- An item expressing the extent to which the teacher is doing well and is aware of psychosocial conditions in education (which affects significantly the course and outcomes of the educational process) is diverging significantly among teachers and students at the Institute of Tropical AgriSciences and Faculty of Environment.
- Students' assessment of the other CULS faculties shows that this element of the educational process has only a slight deviation.

Conclusions

- Competency has been defined as the ability to perform or carry out defined tasks in a particular context, at a high level of excellence. It is more than only knowledge and skills. It includes personal attitudes connected with social and moral appropriateness. An analysis has then been made of competencies in seven categories of the characteristics of good educators. Such an analysis gives a framework to both teachers and their trainers with which to assess personal goals and perceptions. A progress can be later monitored during the training and afterwards in professional experience as an educator.
- At first, they thought that pedagogical skills are obvious part of specialization of a teacher. Most of them thought "If I am an expert in my specialization, I am also able and I have the ability to teach and transfer my knowledge to my students". As lately as during the course, they have discovered

new reality, until that time unknown. They have admitted that to be an excellent university teacher, they have to have pedagogical knowledge and they have to be an expert and professional in this field, too.

- The survey points to a positive conclusion that the teachers themselves have conclude a necessity to gain and deepen their skills.
- Based on the survey information, the IEC intends to continue to offer courses focused on further development of educational skills which would be used by interested teachers. The aim is to eliminate shortcomings in pedagogical, didactic, psycho-didactical, social, psycho-social and communicative competencies.
- Students who participated in the survey should be announced that their views are important for the university and became an important basis for future improvements of the educational process.

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Life quality in the context of home environment, home economics, household, consumer science, visual art

Home environmental factors affecting students' academic performance in Abia State, Nigeria

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Abstract: The study determined some home environmental factors affecting the academic performance of students in Abia State, Nigeria. Survey research design was adopted for the study. Three research questions guided the study. The data were generated using structured questionnaire. A sample of 200 respondents from both junior and senior secondary school students and their parents were drawn through simple random sampling technique from secondary schools in the study area. Descriptive statistics example frequency, percentage and mean were used to analyze the data collected. The finding of the study revealed among others that none provision of adequate educational material by parents and non- cha-lant attitudes of some parents towards the education of their children as well as the socio- economic status of the student's family, all affect the students' academic performance. Also revealed by the study are possible way of amelioration which among others includes giving proper orientation to the parents, on the implication and consequences of the type of family they may decide to adopt on the child's overall being especially the child's academic performance. Based on the findings it was recommended that parents no matter their busy schedule should make out time to sit down with their children or wards and check their children's academic work, direct them where necessary, discuss the academic problems of their children with their teachers or school guidance counselors so as to detect the students problem early enough and tackle it before it affects the students.

Keywords: Home environment, Factors, Academic Performance

Introduction

A home is a place where one lives permanently, especially as a member of a family or household. It is a place of residence or refuge. A home is not a mere transient shelter. Its essence lies in the personalities of the people who live in it.

Home Environment is the surroundings, where one live. According to G.U.Anene (Anene, 2005) environment is the aggregate of all internal and external conditions affecting the existence, growth and welfare of organisms. It is an influence an individual came in contact with after the hereditary has been through the gene plasma. G.U.Anene explained that environment can be divided into physical, social and abstract environment. Physical environment is the objects or materials found in the home, school or community. It also includes the people like parents, siblings and peers (Anene, 2005).She also explained that the social environment is the social life, societies and club affecting the individual. Abstract environment is the reactions, feedback and the responses received on interactions with others. The author further explained that environment can also be classified as urban or rural environment. The focus of this study is on the home environmental factors affecting the academic performance of the students. This therefore, entails the objects, materials, parents, siblings, peers and social life that exists in the home in which the students find himself/herself. All the variables in the home that affect a person's existence, behavior and performance constitute the home environmental factors.

Academic Performance on the other hand is the outcome of education; it is the extent to which a student, teacher or institution has achieved the educational goals. According to G.Bossaert, S.Doumen, E.Bugse and K.Verschuerenc (Bossaert, Doumen…, 2011) academic achievement is commonly measured by examination or continuous assessment; however, there is a general agreement on how it

is best tested. In some countries, the achievement of school is measured by the academic performance index. In Nigeria, academic performance is measured majorly by the student's performance in external examinations like WEAC Examinations both Senior and Junior WEAC, NECO examinations and JAMB examinations.

O.C.Chukwudi (Chukwudi, 2013) discovered that individual differences in academic performance have been linked to differences in intelligence and personality. He explained that students with higher mental abilities as demonstrated by IQ test (quick learners) and those who are higher in conscientiousness (linked to effort and achievement motivation) tend to achieve highly in academic settings. Early academic achievement enhances later academic achievement. However, a number of factors contribute to that. It has also been discovered that certain factors can either influence or hinder the academic performance of students at any level of education. Such factors emanating from the school environment, curriculum planning and implementation, siblings/ Peer group influence, Home Environment eg parents, socialization patterns in the home, location of the home, modern gadgets at home and so on. The target of this study is on home environmental factors affecting the academic performance of students. The student's home environment can either accelerate or hinder a student's academic performance.

A home has earlier been defined as a place of residence or refuge when it refers to a building. It is usually a place in which an individual or a family can live and store personal property. K.Magnuson (Magnuson, 2007) pointed out that parent's academic socialization is a term describing the way parents influences student's academic achievement by shaping students skill, behaviors and attitude towards school. He further explained that parent's influences student through the environment and discourse parents have with their children. This means that academic socialization can be influenced by parent's social economic status. Thus highly educated parents tend to have more stimulating learning environments.

C.Ajila and A.Otutola (Ajila, Otutola, 2000) stated that parent of all classes realized the importance of education. They also pointed out that different families create environment that influences children's intellectual growth and educational motivation in different ways. The function of the family among others includes rearing, protecting and educating the children and such function can be performed in the home, thus a home is an essential agent of education.

Home environments influence adolescents' aspiration. The social upbringing of the child begins from home (family). It is the home that makes the child to identify himself with the society, culture, religion or social class. Thus the home continues to exercises a strong influence over the child's live and academic performance in the school. It has to be noted that homes differ in terms of their significances in the social orders. For instance, some have more prestige, money etc. while some have wider experience and knowledge of how to operate within the society or school environment.

C.Anene (Anene, 2005) stated that the home is the single most significant environmental factor in enabling children to develop the trust, attitude and skills that will help them to learn and engage positively with the world- a process that starts at birth, if not before. It is the foundation from which babies and young children and youths can grow to achieve their full potential. Good home learning environment provides the love, security, simulation, encouragement and opportunities that help children to flourish. The quality of parent-child relationship is fundamental to children's longer –term development. Warmth, encouragement and an absence of hostility are key element in positive home environment.

C.Nanalee (Nanalee, 1997) pointed out that as children grow beyond babyhood, a positive home learning environment provides social interaction, attention and activities which promote the development of positive attitudes to learning, as well as the acquisition of physical, intellectual, language, social and emotional skills. The amount that parents talk to babies and young children and the way they talk to them have been shown to have a direct positive impact on children's linguistic and intellectual ability. At the age of 3 and 10 parents can provides the building blocks for literacy and cognitive development by; chatting as much as possible during normal daily life, using a wide vocabulary praising rather than criticizing, talking to children about things, using language with a high information content, giving children choices rather than simply directing them, listening and

responding to what children say. Research has established that parents' socio-economic background, including education and income, has a substantial impact on children's outcomes. Ample evidence also documents the influence of parenting behaviors on children's development from babyhood to late adolescence.

It is not out of place to imagine that the type of family, parents' level of education and their socio economic background can have possible effects on the academic performance of children in school. What so ever affect the development environment of children would possibly affect their education or disposition to it (Hill, 2004). Parental status is one of such variable when a woman's nutritional status improves, so too does the nutrition of her young children.

Education being one other major means of providing an opportunity in life and belong to a suitable social class, modern Nigeria family now plays crucial roles in the performance of children in school. It is widely recognized that many factors are involved in child's academic performance such factors as parental education level, occupation, income, social class and type of parenthood for instance the socio-economic characteristics of the family in school. They have a bearing also on the duration of his stay and achievement at school. The type of family and level of parents education and their socio-economic status influence the choice of school they place their children. N.E.Hill (Hill, 2004) pointed out that socio economic status of parents has some influence on the academic performance of children.

Children from families with low socio-economic status are at a greater risk of hunger, homeless, sickness, physical and mental disabilities, violence, teen parenthood, family stress and educational failure. Student from low socio economic background that encounter these environmental factors are four times more likely to have learning disabilities than students from high socio economic background while a combination of these environmental factors accelerate academic success. A student, who has not eaten for days and has clothes that do not fit, cannot maintain focus in a classroom. G.U.Anene (Anene, 2005) argues that students from high social economics status compared to students from low social economic status families that students coming from low socio economic background are not provide the same tools as the students from wealthy families, they are entering schools already behind those not living in similar conditions. Similarly it is believed that factors such as malnutrition lack of motivation in homes, spousal violence, and single parents as well as impoverished home environment affects the development of intellectual ability negatively (Mario, 2006). This means that students from low socio-economic backgrounds tend to be below or just an average in their intellectual development particularly when this phenomenon is accessed in terms of scores or tests.

Statement of Problems

Good education does not happen by chance. It is a product of effective teaching and learning coupled with the effort of the teacher, the school, the students, parents and their various home environments. Often a time the blames on the poor performance of students in school are shifted to the teachers and the school authorities.

Most families in our society seem not to give adequate attention to the education of their children. It appears some of the parents have erroneous notion about the performance of their children, they do not know and seem to fulfill their role of guidance and encouragement in the child's performance in schools. Some people also have the notion that the mass failure or success in schools could be traced back to the teachers and the school authorities. While other people see socio-economic status of the family as an influence to the child's academic performance.

However, some research works have revealed that the performance of the students is a joint effort of both the school authorities and that of the parents in different home environment.
This calls for further research to find out the causes of the poor performance of the students and then proffer solution to that. In Abia state for instance, some students and parents have the notion that the factors responsible for the re-occurrence massive failure of student in junior and senior West African School Certificate Examinations (WASCE) is the factor emanating from the school authorities and the teachers alone. Some students even go to special Centre's while few enlightened parents maintained

that there are some factors in student's home environment which also contribute to that. It is on this premise that this study was set out to identify some of the home environmental factor affecting the students' academic performances and proffer solution to that.

Objectives of the Study

The main purpose of the study is to identify the home environmental factors affecting the academies performances of student in Abia State Post-Primary Schools. Specifically, the study determined:

- the present academic performances of students in junior and senior West African School Certificate Examination (WASCE) examination;
- the home environmental factors responsible for the performances;
- suggest ways of achieving better performance.

Research Questions

1. How do you describe the academic performance of the students in the senior and junior WASCE in the recent years?
2. What are the home environmental factors that contributed to the performances?
3. What are the possible ways of enhancing the academic performance of the students?

Methodology

The design of the study was survey and the study area is Abia State, Nigeria.

The population for the study comprised four (4) main groups of respondents namely JSS111and SS111 students in Abia State secondary schools, the parents of the students and the secondary school principals. Records available in Abia state statistical year book revealed that there was a total enrolment of 23684 Junior Secondary School 3 students (JSS3), 18576 Senior Secondary School 3 Students (SS3) during the 2011/2012 academic. Also there were 220 schools and 220 school principals. According to the chairman of the Parents/Teachers Association of the corresponding schools there were 42260 parents of both JSS3 and SS 3 students. (Abia State Statistical Year book, 2012)

Sample and Sampling Techniques

In Abia state secondary schools system, 5 model secondary schools were purposively selected based on the population of the schools. The populations of the JSS 3 students in the 5 models schools were 100 students while that of the SS 3 students were 200. 5 principals of the selected model secondary schools were also involved in the study; however, the principals of the schools were used during the preliminary studies to determine the present academic performance of the students i.e. (no.1 objective of this study). The report from the principals academic records showed that the academic performance of the student were poor. Then 20% of the population of the JSS3 and 40% of SS3 students in the school were determined respectively and then selected randomly for the study. Also studied were the parents of the selected students. The sample then comprised 20 junior secondary school students and their parents (40), and 80 senior secondary school students and their parents (160), making a total sample size of 200 respondents randomly selected from the population.

Instruments for the Study

The instrument was 20 items structured questionnaire which were in four (4) sections – A, B, C and D. The question was developed after an extensive review of literature. Section A collected information on the personal data of the respondents. Section B was designed to collect information on the academic performance of the students. Section C was designed to collect information on the home environmental factors affecting the academic performance of students while section D collected information on the suggestion/possible ways of enhancing the academic performance of the students in the home. The instrument was on four (4) point scale and score as follows: Strongly Agreed (SA) = 4, Agree (A) = 3, Disagree (D) =2, Strongly Disagree (SD) =1

Validation and Reliability of the Instrument

The instrument was validated by two experts from the department of Home Economics/Education. The reliability of the instrument was established through test-retest method. Ten copies of the instrument were administered to the same group of students who were not part of the study twice within a time lag of two weeks. The data collected from the two were then correlated in order to determine the co-efficient of the stability, using spearman's correlation coefficient. The result yielded a coefficient of 0.67.

Method of data collection

The 200 copies of the structured questionnaire were administered by the researcher and two trained research assistant by hand to the respondents. After 2 days interval the researcher and the research assistant collected the completely filled questionnaires. Out of the two hundred (200) questionnaires distributed. All the copies of the questionnaire were returned by the students giving a return rate of 100 percent.

Data analysis techniques

Data collected from the respondents were analyzed using frequency table, percentage and mean. Based on the four point scale namely strongly Agreed (SA) = 4, Agree (A) = 3, Disagree (D) =2, Strongly Disagree (SD) =1, a mean of 2.50 was taken as the minimum acceptable mean score which an item will score before it is accepted. Any mean below 2.50 will be rejected while mean from 2.50 and above will be accepted.

Results and discussion

Table 1

The Mean Response of the Respondents on the Home Environmental Factors Affecting the Academic Performance of the Students.

S/N	Home Environmental Factors	Mean $\bar{X}$	Remarks
1	Late enrolment of the student in a good school.	3.03	A
2	None provision of adequate education materials/supervision of the students' academic work when return from school.	3.60	A
3	Poor Parents/students relationship in the home.	2.95	A
4	None chalant attitude of Parental towards the education of the student.	3.57	A
5	Socio-economic status of the student's family has influence on the students' academic performance.	3.20	A
6	The income level of the family determines the type of the school the child attends.	3.15	A
7	The adequacy of the provision of necessary school materials to the students affects the student's academic performance.	3.38	A
8	The socio-economic status of the family influences a child's self-esteem and confidence in school.	2.72	A
9	The family structure of the student can affect the academic performance of the student.	3.59	A
10	A broken home can affect a student academic performance.	3.50	A
11	The household size can affect the academic performance of a student	3.57	A
12	Disagreement between parents can affect a student academic performance.	3.10	A

Key: X=Mean Response of the Respondents, A= Acceptable mean score.

In the above table, the respondents agreed that all the 12 home environmental factors above affect the academic performance of the students as revealed by their mean scores which were all up to and above the acceptable mean score of 2.50 with item no. 2 having the highest score of 3.60. (Table 1).

Table 2

Mean Response of the Respondents on the Solutions to the Home Environmental Factors Affecting the Academic Performance of Students.

S/N	Solutions	Mean $\bar{x}$	Remarks
1.	Adequate Provision of the student's educational needs, teaching, and supervision of the students work at home by parents can enhance the student's academic performance.	3.45	A
2.	Educated and high income earner parents can provide the educational needs of the student.	2.84	A
3.	Family size and Parental attitudes (interest) towards the student's academic work/activities enhances student's academic performance.	3.10	A
4.	Existence of Cordial relationship between a student's parents motivates the student to study hard.	2.72	A
5.	Early enrolment of the students in a good school by parents can enhance his/her academic performance.	3.10	A
6.	The existences of cordial relationship e.g. unity, Love and care in the student's family can enhance student's academic performance.	3.44	A
7.	The academic level of the student's parents and positive attitude towards education can enhances the student's academics performances.	2.84	A
8.	Provision of modern gadgets at home and good communication network in the home enhances the student's academic performances.	3.40	A

In the above table, all the home environmental factors identified can enhance the students' academic performances. This is shown vividly by their means scores which were all above the acceptable means scores. However item no. 13 which deals with the adequate provisions of the student's educational materials, supervision of their work at home by their parent motivates the students to work harder and this enhances their academic performances. (Table 2).

Summary of the findings

1. None chalet attitude of some parents towards their child's education and Late enrolment of the student in a good school affects the academic performance of the student.
2. None provision of adequate education materials/supervision of the students' academic work when return from school by parents affects the academic performance of the student.
3. Parents/students relationship in the home.
4. Socio-economic status of the student's family has influence on the student's academic performance.
5. The income level of the family determines the type of the school the child attends.
6. The adequacies of the provision of necessary school materials to the students have remarkable influence on the student's academic performance.
7. The socio-economic status of the family influences a child's self-esteem and

confidence in school.

8. The family structures of the student can affect/influence the academic performance of the student.
9. A broken home can affect a student academic performance.
10. The household size of a student can affect or influence his academic performance.
11. The existence of a cordial relationship between parents, children and siblings can enhance a student academic performance.

Discussion of findings

The study investigated the home environmental factors affecting the academic performance of the students in Abia State, Nigeria. In table 1, the result indicated that a number of home environmental factors affect the academic performance of students. However, of all the factors, the none provision of adequate educational materials/supervision of the students' academic work when return from school with a mean score of 3.60 is the highest. This shows the degree of importance on the parents being able to provide adequate educational materials to their children/wards and making out time to check the students' academic work from time to time. This finding is in agreement with C.Ajila and A.Olutola (Ajila, Olutola, 2000) who identified and categorized problems of inadequate supply of students with adequate facilities for school work as problem traceable to students' problems caused by parents and society at large and problems of government policies and funding of education.

This is also in support with G.U.Anene (Anene, 2005) who opined that families should provide their children and wards with adequate educational materials as well as make out time to supervises or look into their academic work when they are back from schools. This practice motivate students to work hard in school so that their parents will not sold them at home when they open their books at home and discover that they are not doing well academically in school. It will also help parents to discover the subjects the student is finding difficult so that arrangements can be made to give remedial studies in those weak subject areas before it becomes too late.

The findings also indicated that a number of home environmental factors can enhance the academic performances of students. Such factors like provisions of adequate educational materials to the students, teaching, and supervision of the students work at home by parents, Enrolment of the students in a good school, the existences of cordial relationship, Love and care in the student's family, the academic level of the student's parents and positive attitude towards education, provision of modern gadgets at home and good communication network in the home among others, all contributes immensely to the students' academic performances. This implies that home environment plays vital role in the children's academic performance. The findings of the study are in line with C.Nanalee (Nanalee, 1997) who stated that the provisions of educational materials and stimulating environment can enhance the students' academic performance. Also O.C.Chukwudi (Chukwud,i 2013) observed that parents with high educational background tend to motivate their children to have interest in their academic work; this also enhances the performance of students in school. Magnuson (Magnuson, 2007) pointed out that siblings and peer group influence at home and provisions of modern electrical gadgets at home like television, radios, home videos, tape recorders, computer systems and so on also promote the academic performance of the students.

The home has a great influence on the students' psychological, emotional, social and economic state. C.Ajila and A.Olutola (Ajila, Olutola, 2000) stated that the home affects the individual since the parents are the first socializing agents in an individual's life. This is because the family background and context of a child affect his reaction to life situations and his level of performance. Although, the school is responsible for the experiences that make up the individual's life during school periods, yet parents and the individual's experiences at home play tremendous roles in building the personality of the child and making the child what he is. S.M.Ichado (Ichado, 1998) concluded that the environment in which the student comes from can greatly influence his performance in school. Although, the home environment or family has been recognized as having a lot of influence on the academic performance of students, C.Ajila and A.Olutola (Ajila, Olutola, 2000) pointed out that other aspects of parental environment such as the structure of the family have been grossly neglected yet they have great influence on the academic performance of the students. S.M.Ichado (Ichado, 1998) noted that parents'

constant disagreement affects children emotionally and this could lead to poor academic performance in school.

The family lays the psychosocial, moral and spiritual foundations in the overall development of the child. While the" mother's significant role in this cannot be over-emphasized. Studies on father-child relationship suggest that the presence of a father in the home influences significantly the development of a child (Agulanna, 1999). Thus, parenthood is a responsibility requiring the full cooperation of both parents who must ensure the total development of their offspring(s). Structurally, a family is either broken or intact. A broken family in this context is one that is not structurally intact for various reasons death of a parent, divorce, separation, dissertation and illegitimacy in which case, the family was never completed (Conkline, 1996). This analysis becomes necessary because life in a single parent family can be stressful for both the child and the parent. Such families are faced with the challenges of diminished financial resources. These conditions are not conducive for effective parenting. This is because when the single parent is overburdened by responsibilities and by their own emotional reaction to their situation; they often become irritable, impatient and insensitive to their children's needs thus resulting to poor academic performance of the child.

Conclusions

As was pointed out earlier, good education does not happen by chance. It is a product of effective teaching and learning coupled with the conscious effort of the teacher, the school, the students, parents and their various home environments. Therefore, a child for excellent academic performance requires in addition to other factors a good home environment. Children vary in their ability and attitude to learn, parents should therefore recognize this and attend to their children as an individual. They should also try to establish and maintain a good home environment where love, hardworking and excellence are encouraged in order to bring out the children's best academic performance.

Recommendations

Based on the result of the findings of study, the following recommendations among others are made:

1. Parents should provide their children/wards with essential materials that will help them improve on their academic performance.
2. The principals of post primary schools in the state should discuss/educate parents on the importance of providing adequate learning materials as well as creating learning environments in their homes to their children. This could be discussed in the Parent/Teachers Association meetings.
3. The three tiers of government in Nigeria should establish and equip more adult education centres for the training of illiterate parents; this will improve the academic level of some illiterate parents so that they will know the necessary roles they should play in the enhancement of their children's academic performance.
4. Parents should endeavor to encourage and give their children/wards adequate time to read and do their home works at home rather than engaging them with domestic works and watching of non-educational movies most of the time.
5. Literate parents/busy parents should squeeze out time out of their tight schedules to stay with their children and check their academic progress.
6. Parents should make out time to reach out with their children's teachers from time to time to update them with their children's academic progress. This will help identify the student's academic problems so as to handle it promptly before it affects the students.

If the above recommendations are strictly adhered to, the problem of poor academic performance of students will be minimized if not totally eradicated.

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Smart textiles for healthcare: applications and technologies

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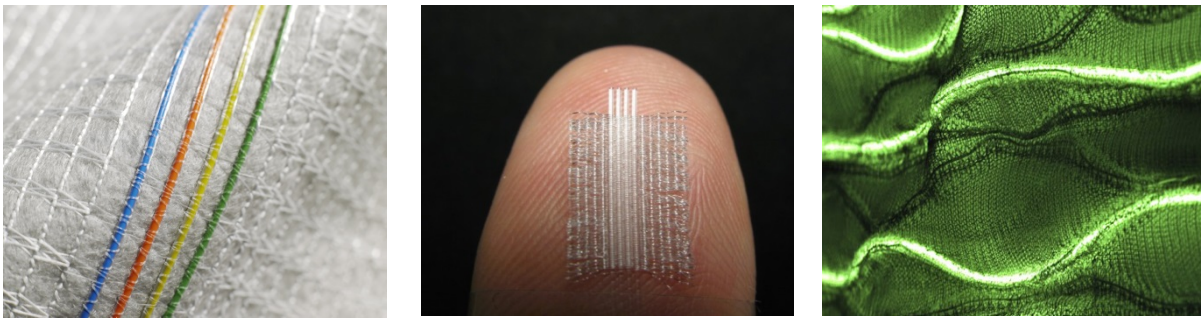
Abstract: Smart textiles are considered to be a new niche for products with great potentials on the textile and apparel market. Generally, smart textiles are referred as textile products with additional value, i.e. they have the common properties of textiles, but insure additional functions, providing attractive solutions for a wide range of application fields, such as healthcare, clothing for protection and sports and technical textiles for automotive industry. However, manufacturing of smart textile products demands a complex and innovative technological approach, combing conventional textile manufacturing technologies as weaving, knitting and embroidery with technologies originating from the electronic sphere, such as coating, lithography and ink-jet printing. Thus, functionalization of textiles may be processed at different levels, i.e. from fibers till fabric or even ready-made clothing. Understanding of drivers, state-of the-art and tendencies in smart textiles ensures further efficient development technology and its interaction with manufactures and consumers. The paper explores and systematically describes applications of smart textiles for healthcare with sensing and actuating functions and introduces to the main principles of technology for textile sensor manufacturing.

Keywords: smart textiles for healthcare, textile sensors, wearable technology, joining technology.

Introduction

Textile and apparel market represents one of the significant segments in the world trade and product manufacturing. Traditionally the textile industry is referred to production of fibres, yarns, fabrics and textile goods. Within technology development, growth of competition on the market and changes in the society, new solutions are required and so that applications of textiles are increasingly expanding. Keys for innovations in textiles are in the focus of the multidisciplinary research in engineering and medicine due to such unique features of textiles as lightweight, flexibility, dimensional variability and opportunities to achieve specific properties through structure and surface modification at different levels. There are many examples of successful efforts in improvement of physical and chemical properties of textiles and extension of their functionality. Moreover, in recent decades a significant breakthrough has been achieved in exploring and enhancing capabilities of textiles to response for environmental stimuli. Such textiles are identified as smart or intelligent, and vary in their nature, technology solutions and applications. Smart textiles possess the properties of conventional textile materials and carry additive functional values. Those are usually associated with sensing and interaction performance. Sometimes such products are aligned with wearable electronics, which is often an indispensable part of intelligent textiles (Van den Kirboom, Byluppala, 2011, Kirstein, 2013).

Smart textiles find applications and have outstanding outlooks almost in every sphere of human activities. Many research projects are dedicated to exploring and developing smart textiles for medicine and healthcare. Use of such smart textile materials vary from *in-vitro* applications to *in-vivo* use as an asset in everyday activities and accomplishing such functions as philological monitoring and communication with environment. Another field of smart textile application is technical textiles for monitoring of structural health, automotive, civil, geotechnical and other engineering industries. Besides high functionality, some smart and intelligent textiles have outstanding aesthetic values and find applications in fashion and design.



(a) (b) (c)

Figure 1. Examples of optical fibre applications in smart textiles for environmental engineering (Dijcker, Van Der Wijk, 2011), (a), medicine (Rothmaier, Selm, 2008), (b) and design (Image: Optical fibre…, 2013), (c)

Figure 1 demonstrates an example of optical fibre applications in engineering, medicine and design. The first picture displays a sensor integrated into geotextiles for temperature and strain measurements (a) (Dijcker, Van Der Wijk, 2011). The second one represents a woven sensor for pulse oximetry assessment (Rothmaier, Selm, 2008). The last picture displays optical fibre use for decorative purposes (Image: Optical fibre…, 2013). It has been proposed that smart textiles can be characterized by their functionality, which often refers to the application field, and integration level of the 'smart compound' (Weber, Adler, 2009, Steffen, Adler, 2013, Catrysse, Pirotte, 2007, Textilien und textile..., 2012). Solutions for manufacturing smart textiles are generally based on such textile production technologies as weaving, knitting and embroidery, and involve textile materials and structures that respond to electrical, mechanical, optical, chemical, thermal or magnetic stimuli (Cherenack, van Peterson, (2012). Quite often those incorporate several technological methods and involve such processing techniques as lithography, inkjet-printing and surface modification in order to achieve a high-performance product. Such combined approach is referred as a joining technology. It offers a broader range of scenarios that find applications in the development of efficient textile-based sensors and insurance of interconnecttions of electronic and textile compounds. Although overall smart textiles still are associated with the research and development sphere, those are resolutely gain relevance in practical use, and experimental manufacturing technologies are being transferred to the industry. Above special and high-technological applications of such textiles, there are already products available also for personal use. One of the most common examples of smart textiles solutions on the market are textile electrodes for heart rate measurements during sports activity.

Despite a variety of smart textiles applications, a significant role has the research that focuses on intelligent systems for healthcare and medicine. The main drivers encouraging development of this segment are socially-demographical situation in Europe and other developed countries, high competition on the textile market and new scopes of available engineering, information and communications technologies. Aging of the population, leads to increasing number of geriatric patients and thereby demands more investments in nursing and medical sectors. On the other hand, the textile and clothing sector is characterized by extreme competition and the micro-segment of smart textiles is one of promising niches for business development in EU based on the R&D platform and new technology transfer from research institutions to industry. This results in investigation and production of wearable textile-based systems for healthcare and compounds for Ambient Assisted Living (AAL) environment. The first attempts to manufacture biomonitoring clothing have already started over a decade, and there are a great number of reports published on investigations of separate compound and complex systems development.

Methodology

This study makes an introduction to the sphere of smart textiles for healthcare and further focuses on biomedical applications that are based on the sensorial textiles compounds. Further, the paper systematically describes the main types of such developments and most common technological solutions.

Results and Discussion

Applications of Smart Textiles for Healthcare

Smart textiles for healthcare include textile sensors, actuators and wearable electronics systems embedded into textiles that enable registration and transmission of physiological data, and wireless communication between the wearer and the 'operator', for example, patient and medical personal. Such systems ensure patients' mobility, thereby providing a higher level of psycho-physiological comfort, especially when a long-term bio-monitoring is required (Kirstein, 2013, Catrysse, Pirotte, 2007; Textilien und textile..., 2012; Cherenack, van Peterson, 2012; Chan, Esteve, 2012; Alemdar, Ersoy, 2010; Schwarz, van Langenhove, 2010).

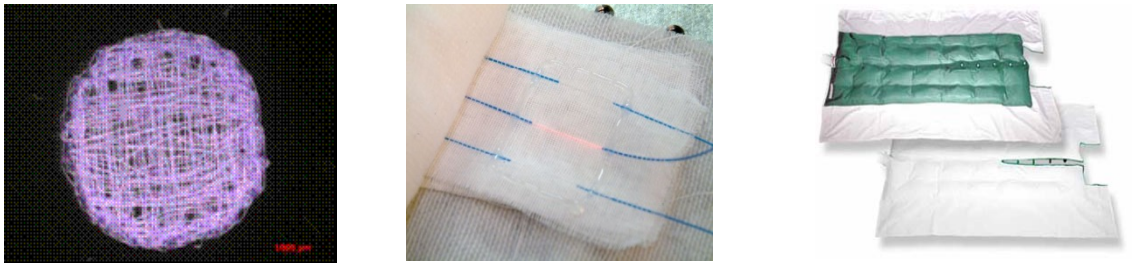
Generally, applications of smart textiles for medicine and healthcare vary from the surgical applications of single yarns to complex wearable and axillary systems for personalized healthcare. There is no still classification smart textile for these applications, but initially those can be described referring to commonly distinguished groups in conventional medical textiles. Of course, due to new functions, several new categories must be highlighted. Those are textile drug-release systems, textiles with biometric performance and active textiles for therapy and wellness. In the Table 1 are summarized main applications fields of smart medical textiles (Rigby, Anand, 2000, Bartels, 2011, Van Langenhove, 2007, Vargas, 2005).

Table 1

Applications of smart textiles for medicine and healthcare

Application	In vitro	In vivo
Surgery	Bandages Wound-care	Sutures Soft-tissues Orthopaedic implants Cardiovascular implants
Hygiene	Uniform for medical personal Hospital textiles	-
Drug-release systems	Smart bandages and plasters	-
Bio-monitoring	Cardiovascular and haemodynamic activity Neural activity Muscle activity and kinematics Respiratory activity Thermoregulation	-
Therapy and wellness	Electrical stimulation therapy Physiotherapy Auxiliary systems Active thermoregulation systems	-

Traditionally medical textiles find applications in surgery and hygiene.



(a) (b) (c)

Figure 2. Embroidered scaffold (Rotsch, Hanus, 2009) (a); wound dressing with pH sensor (b) (Pasche, Schyrr, 2013); warming blanket for decubitus prophylaxis (Image: Warming Blanket… , 2013) (c)

Within new achievements in material science and textile related disciplines, new advanced products referred to smart medical textiles are entering this sphere.Specifically for implantable surgical materials, a real breakthrough has been gained in tissue engineering using textile technology that ensures two- and three-dimensional structure development. Such implantable structures and compounds encourage cell distribution and adhesion in the body. Moreover, those can possess outstanding mechanical properties and ensure opportunity to create different geometrical structures. Figure 2 (a) displays a sample of a scaffold developed by chemical embroidery in TITV Greiz (Rotsch, Hanus, 2009).

(a) (b) (c)

Figure 3. Medical textile with a lubricating drug-delivery dressing (Gerhardt, Lottenbach, 2013) (a); Wearable Motherboard™ for vital signs monitoring (Image: Wearable Motherboard™ , 2013; Park, S., Jayaraman, 2001) (b); Philips phototherapy blanket for new-borns' jaundice treatment (Lorussi, Scillingo, 2005) (c)

Non-implantable or *in vivo* surgical smart textiles can be also characterized by a specific two- or three-dimensional structure and/or additional functional compounds. Those could be miniature fibre-based

biosensors that monitor or improve the healing process. For instance, there are already several scenarios are suggested to insure pH level monitoring for wound and burn management for assessment of biochemical changes in the wound environment (Figure 2 (b)) (Pasche, Schyrr, 2013; Scharp, 2013).

A relatively new category of smart medical textiles is textile-based drug delivery systems (Figure 3 (a)) (Van Langenhove, 2007; Gerhardt, Lottenbach, 2013). In some cases, transdermal drug delivery can be a good alternative to traditional pills and medicaments in such situations when it is necessary to reduce the effect on stomach and intestinal tract, or medicaments lose their activity. Moreover, transdermal drug delivery is a solution when oral administration is not possible or difficult (Van Langenhove, 2007). The fusion of textile and biotechnology with chemistry and pharmacy studies can offer a variety of scenarios for drug delivery system development. At present there are different delivery methods are developed. In those, textiles can have functions from a carrier or a forming layer, e.g. transdermal patches, till advanced systems with controlled drug-release.

Above that, smart materials find applications in hospital textiles and clothing for medical personal. Additional functionality of such textiles can be obtained by different approaches according to specific applications. For this type of medical textiles though, most solutions are brought by functional textiles. For hospital textiles, those commonly are textile materials with antimicrobial and antibacterial properties or low friction coating. Clothing for medical personal is also made of functional textiles that insure efficient moisture transport and biological protection. Nevertheless, conductive textile materials are more often used in manufacturing of heating textiles that find applications in blankets for operating rooms (Figure 2(c)) (Image: Warming Blanket… , 2013). Above that, conductive textile materials can be an asset in improvement of distanced communication between medical personal and patients through wearable technologies integrated into clothing. Smart textiles also offer solution for decubitus prophylaxis and related health disorders that are a significant problem in the hospital environment. At present, there are already a number of developments that assist in managing these problems through innovative and smart textile solutions. Namely, those can be implemented by

stimulating blood flow in sensitive areas via textile-based sensors and systems, optimizing and controlling moisture management via textile sensors (Lenting, 2012).

First most known attempts in textile sensor development were reported over a decade ago within such research projects as *Wearable Motherboard*^{TM} by Georgia Tech, and such EU projects *Wealthy* and *My Heart* (Fig.3 (b)) (Image: Wearable Motherboard^{TM} , 2013; Park, S., Jayaraman, 2001; Paradiso, Loriga, 2005; Harris, Habetha, 2007). At present, there is a great variety of textile sensors and complete systems for assessment of physiological and biochemical processes (Table 1).

Besides biomonitoring functions, smart sensors can assist in such prophylactic and therapeutic arrangements as muscle electrical stimulation and posture monitoring (Gniotek, Frydrysiak, 2011; Keller, Kuhn, 2008; Dunne, Walsh, 2006; Dunne, Walsh, 2007). For such applications as photo- and photodynamic therapy, textiles can be carrier materials and textile manufacturing technology can be a mean of a product manufacturing. There are a number of such developments for pain relief and jaundice treatment that are based on light emitting diode (LED) and optical fibre technology (Figure 3(c)). For these applications, textiles ensure development of wearable and portable flexible systems with friendly interface. Moreover, textile technology is an advantageous approach to manufacture textile diffusers with different dimensions and structure. Electro-conductive materials are also used for active thermoregulation system development. Those can be integrated into clothing or into garment items to ensure external temperature regulation in clothing systems or be an asset in infra-red pain management (Rantanen, Alfthan, 2000; Product catalog of TherMedic…, 2013).

Textile Sensors in Smart Textiles for Healthcare

As it has been mentioned above, textile sensors for physiological assessment and therapy purposes vary in their functions and applications, materials and technology solutions, and integration level into textiles. According to their general working principles, those can be physical, biochemical and optical transducers. Further, those can be divided into several categories according to their integration level into textile structure. This is mostly defined by the chosen technology approach. According to the literature review, four general sensor structure categories were defined:

- fibre-based, when a sensor is a single yarn;
- textile-structured, when all compounds of a transducer are textile materials;
- textile-based, when textiles are a substrate or another non-sensitive, but inseparable compound of a transducer;
- textile-integrated, when textiles carry the function of a carrier.

Above that, textile sensors can be characterized by their functions, measurement units and application. Variations in solution implementation approach ensure application of the same technology for different purposes. For example, optical fibre technology offers scenarios for such criteria assessment as temperature, moisture, blood oxygenation and sweat pH level, respiration rate and movement. Thus, in order to present an overview of available solutions for healthcare, those were described according to their sensory functions. Often smart sensors require a complex implementation approach by joining technology in order to achieve a better performance. Although textile sensors differ in their structure, the main compounds, on which is based the working principle, are a substrate and, sensing or active materials. Structures of sensors implemented by such technologies as coating, thin films, lithography and inkjet-printing, can incorporate also such functional elements as a capping or encapsulation layer that protect the sensitive compounds (Sibinski, Jakubowska, 2010).

Textile electrodes

Textile electrodes can be divided into passive and active ones [16]. In both cases, their operation principle though is similar to conventional electrodes working principles. Passive electrodes can be defined as textile sensors capable of electrical signal acquisition. They find most applications in registration of cardiac and muscle activity through detecting electrical potentials generated by the heart and muscles. They find applications for heartbeat estimation, heart rate variability (HRV) analysis, electrocardiography (ECG) and electromyography recording. There are also investigations in textile electrode development for assessment of electrical activity of the brain. These electrodes measure voltage fluctuations that result from ionic current flows within the neurons and are an

alternative solution for conventional electroencephalography electrodes. Above that, passive textile electrodes can be used in assessment of galvanic skin response. Those change their conductivity according to the electrolyte saturation in the sweat produced from the skin surface. Such electrodes find applications in smart textiles and clothing for continuous wireless biomonitoring and biofeedback wearable systems. Active textile electrodes for smart medical textiles can be referred to electrodes for transcutaneous electrical stimulation. Such electrodes transduce the applied electrical current to a tissue probe on a skin surface in order to activate the targeted nerve cells, skin receptors or other sensory and motor units of the body or achieve pain relief through nerve electrical stimulation (Keller, Kuhn, 2008; Li, Au, 2009).

The most common used materials for the sensor implementation are conductive textile materials that can be yarns that ensure fabricating of textile electrodes via such conventional textile manufacturing technologies as weaving, knitting and embroidery. Another approaches offer solutions implemented via inkjet and screen printing, and such thin film technologies as sol-gel and sputtering methods (Xie, Yang, 2013; Rattfält, Björefors, 2013; Cho, Jeong, 2011). The textile electrodes fabricated by the mentioned conventional techniques demonstrate though higher efficiency in performance and usage (washing).

Temperature sensors

Another crucial parameter in health monitoring is body temperature. It results from the balance between the heat production and heat loss and reflects the processes of the chemical and physical thermoregulation cohered with activity of other organ systems, e.g. endocrine and neural systems. For medical assessment, the most informative and significant parameter is core temperature, which is the constant temperature in the deeper parts of the body and in the proximal extremity portions. Another criterion is shell temperature, which is measured on the skin surface and at the hands and feet to approach the room temperature of 19 ^{o} C in a person standing in a cold room for hours (Li, Yang, 2012).
Temperature sensors based on smart textiles technology can provide evaluation of temperature changes on skin surfaces and in the near-body environment. These data can be used for such applications as physiological assessment, control and improvement of the patient's comfort, and monitoring of wound healing. Textile manufacturing and engineering technologies offer solutions for fabrication fibre-based or single yarn, woven, knitted, embroidered and printed textile sensors for temperature estimation (8) (9). By their operation principle the reported temperature sensors are designed like thermocouples, resistive or strain, semiconductive and optical sensors.

Initially thermocouple can be referred as the simplest solution for temperature sensor implementation due to its structure. Those consists of two dissimilar metal materials coupled in one point and a voltage related to the temperature difference is produced the junction between the metals. The achieved data can be further converted into an output temperature signal by the electronic circuit. Resistive or strain temperature sensor works as the resistance temperature detector (RTD). The working principle of such sensors is based on the changes of metal electrical resistance related to the temperature. Both types of the mentioned temperature sensors are commonly fabricated from conductive yarns or with application of metal monofilament wire. Semiconductive sensors are polymer- based and temperature signal is achieved according to the spreading resistance analysis of semiconductors. Another type of a temperature sensor is a fiber Bragg grating (FBG)-based sensor, which is a sensitive optical material reflecting particular wavelength of light and transmitting the others. Fibre engineering and coating technology inspire development of single yarn miniature sensors based on thermosensitive polymers and carbon nanotubes and FBGs-based sensors.

Respiration rate sensors

In physiology, respiration is defined as the process of taking up oxygen and removing carbon dioxide from cells in the body (Li, Yang, 2012). This is a two stage biochemical process resulting in gas exchange and cellular respiration. Breathing is characterized by respiration rate (RR, breaths per minute). Breathing that consists of inhalation and exhalation activity is a part of respiration and coheres with abdominal and chest movements. Strain sensors ensure efficient estimation of this motion activity and then the acquired data can be used for RR evaluation. Optical fibres are one of the most

used materials for these purposes due to relative simplicity of the measurement approach and processing of optical fibres with such technologies as weaving and embroidery (Park, Jayaraman, 2001; Narbonneau, De Jonckheere, 2010).

Although respiration rate has limited applications in respiratory dysfunction assessment, this parameter is often crucial in telemetric monitoring during specific clinical assessment procedures, sleep monitoring and a number of respiratory disorders. Textile sensors for RR estimation also find a number of applications in protective and combat clothing, smart textiles for prevention of sudden infant death syndrome (SIDS), and monitoring of vital signs for geriatric or disabled patients (Cherenack, van Peterson, 2012, Chan, Esteve, 2012; Narbonneau, De Jonckheere, 2010; Witt, Schukar, 2013). For these purposes, breathing is first of all an indicator of normal physical activity. Above that, this parameter along with cardiovascular parameters can be also an important criterion in sports physiology in order of planning an efficient training without risk for health.

Textile sensors for kinematic analysis

Besides registration of physiological parameters, textile materials can assist in kinematic analysis, monitoring of body motion and positioning. These criteria are significant in rehabilitation and assessment of skeletal system during therapy treatment and diagnostics with application of optical fibres, piezoelectric materials and elastomers (Dunne, Walsh, 2006, Dunne, Walsh, 2007; De Rossi, Bartalesi, 2006; Fereira, Rocha, 2013). Such approaches ensure wearable textile-integrated solutions for long-lasting monitoring of gait, posture, particular body units and joints, and general positioning or movement activity of a patient. Acquired data can be processed and used for real-time remote image capturing without use of camera application or complicated inertial sensor systems. Besides wearable sensors, there are sensors for motion capturing for such applications as Ambient Assisted Living (AAS) and sleep monitoring (Lauterbach, Steinhage, 2013; Lauterbach, Steinhage, 2013). Solution for such applications can be ensured by capacitive textile sensors and implemented according to a variety of scenarios using conductive textiles and piezoelectric materials.

Humidity sensors

Humidity is a crucial criterion in many philological and biological processes, and can significantly influence human's health. Initially moisture can be referred as absolute humidity that indicates the actual amount of vapour. Relative humidity (RH) implies the percentage of the vapour amount in the air at prescribed temperature that is compared to the amount of vapour, which could hold in the air by this temperature. Capacitive humidity sensors consist of two electrodes and a dielectric placed between the electrodes. RH values are determined according to the capacitance changes of the dielectric constant, which is the relative humidity and temperature of the dielectric. Thus, the main requirement to the dielectric material is hydroscopicity, i.e. easy absorption of vapour in the environment. The operation principle of resistive humidity sensors is based on measuring the changes in electrical impedance in the hydroscopic medium. The hygroscopic material absorbs water and ionic functional groups are dissociated, resulting in an increase in conductivity. Thus, as the humidity increases, the resistance of the material decreases (Chen, Lu, 2005). Both described working principles of conventional capacitive and resistive humidity sensors can be transferred to textiles via different implementation scenarios. Efficient measurements of relative humidity usually require a complex approach by joining such technologies as weaving, embroidery, fibre coating, inkjet-printing and lithography (Pereira, Silva, 2011; Rumpf, 2008; Weremeczuk, Tarapata, 2012; Nocke, Schroeter, 2012). The choice of the most appropriate approach is determined by the chosen sensor structure, materials and applications. Initially textiles can be successfully used as a vapour or moisture absorbing substrate material due to their physical and chemical characteristics. Moreover, conductive textiles are a good candidate for implementation of sensor electrodes.

At present, there are found several approaches of humidity sensor development via smart textile technology for such healthcare applications as ulcer prevention, monitoring of sweat rate and moisture in wounds. A research team from Spain offers a fully textile moisture sensor for bed-rest patients developed with conductive yarns and metal monofilaments by weaving and pressing (Pereira, Silva, 2011). Researchers from the Warsaw University of Technology demonstrated another approach of sensor development by joining inkjet-printing and coating technology. Sensor electrodes were inkjet-

printed directly on textiles and then coated with a vapour sorption layer (Weremeczuk, Tarapata, 2012). Conolly et al. used also printing technology to develop a moisture monitoring system with textile integrated sensors for wound healing assessment (Nocke, Schroeter, 2012). Another scenario for textile humidity sensor was realized. in the frames of EU *Biotex* project. They have developed a textile sandwich-structured capacitive sensor for sweat rate monitoring (Moriss, Coyle , 2009; Coyle, Morris, 2012).

Sensors for pH level estimation

The pH level is one the important indicators in assessment of biochemical processes in physiology and is regulated by acid-base homeostasis. The pH level is a crucial parameter in assessment of wound healing processes and in sweat monitoring. Modern textile and engineering technologies offer several scenarios to develop such a sensor that ensures continuous pH monitoring in real-time. Despite the variety of developments, there are found several key scenarios for sensor implementation described in the literature (Pasche, Schyrr, 2013; Moriss, Coyle , 2009; Coyle, Morris, 2012; Caldara, Colleoni, 2012; Vincenzini, Rossi, 2008; Van der Schueren, De Clerck, 2013).

One is based on application of such halochromic materials as pH-sensitive dyes and hydrogels and further colorimetric analysis. Such approach to measure sweat pH based on a textile based platform was described by Coyle et al. and Caldara et al. (Moriss, Coyle , 2009; Coyle, Morris, 2012; Caldara, Colleoni, 2012).

The textiles function for sweat collection and storage. A pH-sensitive coating immobilised on the fabric performed as a pH environment indicator and a biased LED performed a quantified sweat analysis. Another solution is integration of optical fibres with pH-sensitive coating into wound dressing (Pasche, Schyrr, 2013; Vincenzini, Rossi, 2008).

Another approach to assess pH range changes in wounds is based on impedance measurements. Nocke et al. suggested a scenario for an impedimetric single yarn sensor (Nocke, Schroeter, 2012). The sensor consists of a two monofimentary gold electrodes and a pH-sensitive layer. The inner electrode was covered a pH-sensitive hydrogel and the outer electrode was enwinded around the inner one.

Pulse oximetry sensor

Pulse oximetry is a non-invasive technique for estimation of the arterial oxygen saturation (SpO_2) in the studied biological tissue. Pulse oximeters measure the light absorption of oxygenated and deoxygenated haemoglobin at two different wavelengths in the near-infrared spectrum. Pulse oximetry finds application in such clinical applications as emergency and recovery rooms, intensive care and during anaesthesia (Rothmaier, Selm, 2008; Zysset, Nasseri, 2013; De Jockkheer, Jeanne, 2007; De Jockkheer, Narbonneau, 2008).

Although smart textile technology has not been yet that much explored in comparison with development of textile electrodes or other textile sensors, there are already offered solutions that are initially based on two scenarios. Zysset et al. have demonstrated a scenario is based on application of miniaturized electronics conventionally processed and integrated into textiles. Miniature LEDs and photodiodes (PDs) were placed on flexible plastic stripes that were woven into a fabric with conductive yarns, which ensure electrical interconnection between the incorporated compounds (Zysset, Nasseri, 2013). Another approach with application of optical fibre technology has been suggested in the research project Ofseth and a research team from Switzerland. In the frames of the former investigations, blended optical fibres were used to measure blood oxygenation (Zysset, Nasseri, 2013; De Jockkheer, Jeanne, 2007). Rothmaier et al. have offered three options to develop a SpO_2 sensor with weaving and embroidery two techniques using poly(methyl methacrylate) plastic optical fibres (PMMA POF) as sensing material and polyester fibres as the supporting material (De Jockkheer, Narbonneau, 2008).

Conclusions

Smart textiles find variety of applications and possess sensing and actuating functions that can be efficiently used in medicine, engineering and fashion. Smart textiles for the former use are one of the

most important niches in the R&D sphere due to the socially-economic and technological drivers. Such textiles offer advanced solutions for smart clothing and textiles for sensing and actuating, protective wear, ambient assisted living, hospitals and surgery. Those have potentials to support healing processes, improve safety, comfort and living of patients ensuring their mobility in a friendly way.

There are already a great number of offered solutions and scenarios for manufacturing textile biosensors, but mostly those are still at the prototyping stage. Some products are already accepted by the industry and introduced to the market, but the process of development technology transfer to manufacturing is burden due to such factors as initially high costs of fabrication, and commercial introduction and use. The first step to overcome these technical, strategic and socially-economic barriers is prototyping technology alteration to mass production. This solution would lead consequently to the cost reduction and make the price of smart products more competitive and attractive in comparison with their parent items.

Technology and material solutions incorporate fibre, textile and electronics manufacturing technology with application of materials with electrical, chemical, mechanical, thermal and optical reaction. At present from the whole variety of textile sensors and actuators for healthcare, textile electrodes are those that are mostly commercially introduced due to the availability of the materials and well-developed technological approach. Optics technology is also often addressed to ensure sensing and actuating within textile products and interfaces.

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The acquisition of primary school pupils' life activity skills in the aspect of teaching content of home economics and technologies

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Abstract The study of Home Economics and Technologies is a significant study subject where pupils' knowledge, working skills and attitudes are developed which is the basis for the acquisition of pupils' life activity skills. It is essential to link the learning experience with the real world of work. The choice and topicality of the research theme was determined by the observed contradiction in contemporary study of Home Economics and Technologies between students' (future primary school teachers) handicraft skills not mastered at school and the possibilities to acquire the methodology of the study of Home Economics and Technologies as well as between the pupils' self-organization and self-discipline skills and the acquisition of the study content of Home Economics and Technologies from the perspective of life activity. During the research we explored the prerequisites for the acquisition of life activity skills for primary school pupils in the study of Home Economics and Technologies.

Keywords: the study of Home Economics and Technologies, life activity, primary school.

Introduction

The subject of Home Economics and Technologies (needlework, handicrafts, housekeeping) has changed as a result of different school reforms and has always kept educators' thoughts (Žukovs, 1987). School reforms underline the significance of needlework, handicrafts, and mentoring in the development of harmonious personality, in the identification of values; however, its ways and methods of implementation into practice are still searching for solutions. Modern, scientifically based recommendations for the implementation of the study of Home Economics and Technologies into practice have not been developed yet, which would facilitate every pupil's readiness for a life activity.

The study of Home Economics and Technologies is an important subject where pupils build knowledge, skills and attitudes, which is the basis for the acquisition of pupils' life activity skills. Therefore in the study of Home Economics and Technologies there is the important content which corresponds to the pupils' needs, interests, abilities.

Nowadays the European Commission evaluation report has stated that the European education and training system is still unable to provide skills to guarantee employment, and it does not approximate learning experience to the real working life (European Commission …, 2012).

The choice of the research subject and its topicality was also determined by the contemporary contradictions in the study of Home Economics and Technologies between:

- students' (future teachers of primary schools) unrealized handicraft skills at school and learning opportunities of Home Economics and Technologies training methodology,
- pupils' self-organization, self-discipline skills and the acquisition of Home Economics and Technologies s content within the aspect of life activity,
- the study task of Home Economics and Technologies – to acquire the basic skills of self and surroundings maintenance, the healthy diet choices, cooking and their implementation into practice (Mājturība un tehnoloģijas …, 2008).

Contemporary educational tasks, including the study of Home Economics and Technologies, are supposed to help learning the skills that are needed in different areas of life: work, school, private, and public life. Hence the question regarding the acquisition of the pupils' work skills within the aspect of readiness for life activity has become topical.

Aim of the Study

To explore and analyze the acquisition of primary school pupils' life activity skills in the aspect of the study content of Home Economics and Technologies and to discover acquisition conditions of pupils' life activity skills.

Methodology

The research has used: a theoretical method - literature analysis, document analysis; empirical methods – interviews, observation and practical experience analysis; mathematical processing of data.

The research was carried out in the practice schools of Riga Teacher Training and Educational Management Academy, Cambodia's primary school (in a rural area), and one of Sweden's primary schools.

Results and discussion

In the historical times, primitive people made themselves clothing from animal skins and fibres of plants. The need to decorate these garments also appeared. In Kurzeme and Vidzeme during the reign of Duke Jacob Latvians wore self-made clothes and self-made footwear (Grīns, 1931, 5-6).

Over the time, the human mind, taste, hand dexterity is developed. More knowledge and experience in carrying out various kinds of work appear. By adding to its wisdom of life, the next generation gets even a richer stock of knowledge. A. and A. Dzērvīši indicate that a Latvian woman in ancient times constantly had to deal in daily life with all necessary preparation of handicraft and fabric, and that parents took an effort for their children to obtain this accumulated wisdom of life. The landladies spun, wove, stitched, knitted and mended everything that their families needed. In addition to farming, rural residents were engaged in several dozens of crafts and sometimes also domestic industry. Children living in such an environment gained the knowledge in a self-taught way, acquired skills in various types of handicrafts (Dzērvīši, 1937, 6).

Life activity, according to A. Špona, has been developed within the process of cognition and transformation of the person himself, the society and nature in the system of techniques and attitudes of the individual's activity implementation and meeting one's needs (Špona, 2006). In their turn, E. Volāne and A.Špons define life activity *skills* as the ability to make objective decisions and the ability to operate on the basis of the knowledge and attitudes (Volāne, Špons, 2010).

Following the handicraft training, as the A. and A. Dzērvīši indicate, then some training methodology was also used at the time when there were no schools. When herding the cattle, girls acquired the skills to make narrow, braided garters, simple knits. However, very little girls, in a semi-serious, semi-playful way exercised their patience and endurance by rolling yarn balls, tearing the wool and even spinning coarse threads. In their turn, the boys when herding made simple wooden boxes, carved wooden spoons, made reed-pipes (Dzērvīši, 1937, 7). Thus, by switching imperceptibly from easy to more complex works, children were guided into the serious work and life. The first practical works became the basis for skills acquisition which was important in life activity.

A question about the importance of crafts in the acquisition process is topical not only in Latvia, but also in other countries. The French philosopher, enlightener Jean Antoine Condorcet indicates that the four-year primary school includes the introduction to farm work and acquisition of crafts, which helps a child prepare for life (Шабаева, 1981, 62). This idea is continued by Robert Owen, emphasizing that in the primary school boys need to learn crafts, gardening, but girls - sewing, cooking, and other farm works (Шабаева, 1981, 98). In Russia, as well as around the world, work was considered to be one of the most important elements of learning that children can be tested in the activity and the process of work. Women handicraft lessons are mentioned in the educational literature most often, which took place both in monasteries and in seminaries (Шабаева, 1981, 3).

Handicraft training system in Latvia is connected with the name of K.Cīrulis. In the creation of handicrafts system K.Cīrulis uses and further develops cognitions formulated by Neo-Latvians (Auseklis, A.Kronvalds, K.Valdemārs, J.Alunāns, etc.) regarding the approximation of the school

curriculum to daily life, according to the economic and social requirements of the epoch. Auseklis's opinion is important that the process of upbringing, which starts in early childhood, has to be continued at school systematically and without interruption. The teacher's task is to succeed that work becomes a habit for children (Auseklis, 1923, 463).

K.Cīrulis emphasizes the idea that it is necessary to prepare children for life, to create aesthetic taste, stimulate the imagination. Perhaps therefore in the handicrafts study content he recommends not to be limited to knitting, sewing, embroidery and darning, but also to include other types of work such as washing, ironing, and lessons in the kitchen, in the garden and the vegetable garden (Цируль, 1894, 166). It encourages a more diverse formation of working skills. K.Cīrulis emphasizes a teacher's performance as a significant factor in the handicraft training. His views correspond to F.A. Distervegs' cognition that the teacher's strength is in his method (Цируль, 1894, 163). K.Cīrulis's cognitions are important in the creation of a handicrafts teacher's model explaining that a handicrafts teacher needs to feel the willingness to work, to feel the obligation to nurture the love of work, to be intellectual and to remember that handicrafts are a means to achieve the goal (for personal development).

Handicrafts, as K.Cīrulis admits, only then will contribute to the upbringing, if their contents, organizational forms, methods of work will comply with the children's powers, interests, will promote the amateur art (Цируль, 1894, 166).

In turn, the handicraft training tasks given in "The Handicrafts Curriculum of Folk High Schools" correspond to the pedagogical cognitions published at that time to satisfy children's predisposition for acting and movement, to develop the child's ability of observation and comparison, artistic taste, to nurture in the children the joy of work, initiative and confidence in their own abilities, to show children how to use geometry, calculation, drawing and other real knowledge in practical life and to familiarize children with the qualities of materials and tools and their uses, which have a major role in their later life, to develop the child physically (Tautskolu rokdarbu …, 1925, 4).

A.Panteļejevs' cognition is significant that the work skills formation process, the results of the work, as well as the recognition of the well done work are important in the teaching process. The recommendation is essential that at handicrafts children do not have to be taught just to make various items by setting it as the ultimate objective, but rather to nurture them *at* work and *with* work (Panteļejevs, 1936, 3). Also, the formation of habits regulations has not been forgotten yet, which was considered to be important at the end of the 19th century by K.Cīrulis and by educators at the beginning of the 20th century.

A. Panteļejevs emphasizes that practical work is also one of the most serious subjects that require a great consumption of energy and interest from a teacher. Additional energy of the teacher is also required by the suggestion nominated in the curriculum for *self-control, self-analysis* promotion. Not only independent work becomes significant at handicraft lessons, but also the ability to use at work the knowledge and skills acquired in other subjects. There is a significant recommendation to pay a particular attention to the ability of making items that are similar in structure and role to the already manufactured, thus using their work experience (Panteļejevs, 1936).

When analyzing the handicraft study experience at the time of the Soviet school we may conclude that, compared with 1920s-1940s there are significant changes felt in the handicraft training. Relatively frequent changes in requirements for teaching handicrafts are affected by various Governmental and the CPSU decisions regarding the improvement of school performance.

On the basis of the principal tasks, research of the Soviet school, the handicraft study content, methodology, organizational forms of work in primary schools are developed and improved. The study content includes works that prepare students for life activity – it includes agricultural work, working in the fields, cleaning the school and its premises, clothing care, as well as plans to acquire basic skills in cooking as well. At a certain period of time handicraft content includes working with wood, with plywood and cardboard to simpler work in sawing, nailing, planing, painting, which provides gradual acquisition of practical work skills. It takes into account the pupils' age, gender and the educational content includes modelling, technical works, as well as electrical engineering.

A. Feldmanis indicates that at practical work lessons, in the field work school patch, works are to be carried out both individually and collectively (Feldmanis, 1960, 8). L. Žukovs also believes that the younger school-age children must be involved in self-service so that they develop in themselves socially significant motives of activity. Pupils need such conditions so that they feel encouraged by the fact that with their work they provide other people with enjoyment and benefit (Kopeloviča, Žukovs, 1989, 10). It should be noted that a collective work type in handicraft training is mentioned for the first time because in 1920s-1940s the individual or group work was mostly emphasized. Thinking about the readiness for the life activity, L. Žukovs especially emphasizes the opportunities for boys to acquire mending and sewing skills (Žukovs, 1987, 74).

Interesting research was carried out in Russia. Its aim was to explore the nature of handicraft training at schools in capitalist countries (also at primary schools). It was a comprehensive research because primary schools from 27 countries were involved. Teaching goals for the significance of a practical activity are related to preparation for life (in the USA, France), to the practical applicability of the products (in Brazil, South Africa, Thailand), to assistance in the choice of profession (in Italy, Chile), etc. There are several surprising research results – in all countries a huge number of lessons is allocated to handicrafts. In several countries (in Egypt, France, Italy, New Zealand, Switzerland, Uruguay) boys learn the skills to work with technical equipment and use materials that are readily available - a variety of industrial leftovers. It is interesting that teachers without special education teach only in some countries (*Ручной труд* …, 1955, 4-23).

The main benefit is high variety of handicraft training goals and objectives in the world, which confirmed the idea, that handicraft study content was developed *in accordance with the needs of life* in relation to the real things and phenomena that are approximated to life. In Latvia and the world there are common trends in the acquisition of Home Economics and Handicraft Technologies, including pupils' skills development for readiness of life activity in the aspect of personality development.

Nowadays the primary school Home Economics and Technologies training content includes knowledge and understanding about human lifestyle, i.e. housing, security, housework scheduling, diet, clothing, so that pupils would shape not only the concept and initial skills at the handicrafts for health maintenance, but also to create a positive attitude towards the environment, society and public health as a value. The second section of the teaching content is equally important – practical and creative application of technologies for the improvement of human living environment (product ideas, creation of conception and design, projecting, manufacturing of the item from textile products, paper, cardboard and natural materials, building materials, wood and wire. A relevant part in the acquisition of life activity skills is given to the work process and product evaluation, which is also one of the sections of Home Economics and Technologies study content (Mājturība un tehnoloģijas …, 2008).

In order to see the acquisition of important skills for pupils' life activity, we continued the research that was started in 2005, 2007 together with the students from Riga Teacher Training and Educational Management Academy at the practice in primary schools (Volāne, 2008). In 2013, the research enrolled 954 primary school pupils. Whereas the European Commission education evaluation report indicates that there is still a high demand for skills related to science, technology, engineering and mathematics (European Commission …, 2012), then continued exploring the pupils' ability to measure and to construct in accordance with the given sizes. It is to admit that measuring skills for pupils are necessary in several subjects and in the further life activity as well, especially in engineering, mathematics. The results were compiled in a table (Table 1).

In accordance with the compiled results it can be concluded that there is a higher percentage of such pupils (32 %) in form 3 who are not capable of constructing the figure according to given measurements. In comparison with the results of 2007, the results collected from the pupils of form 3 cause reflections. In recent years, the pupils' skills to measure, cut and construct have declined. One of the reasons is the reduced number of lessons for practical work, i.e. one lesson (40 minutes) a week. In the course of the research it was observed that pupils lack the patience, they rush to get faster results. In particular, it was noticed that in form 3 pupils have already grown superficiality as a character trait, which was formed for 3 years.

Table 1

Pupils' ability to design and measure in accordance with the given sizes

Form	Accurately		Inaccurately, with insignificant slips		Designed figure does not correspond to the given sizes	
	2007	2013	2007	2013	2007	2013
1.	72%	69%	10%	12%	18%	19%
2.	69%	54%	22%	17%	19%	29%
3.	78%	48%	9%	20%	13%	32%

In the research of 2013 it was observed that pupils had better acquired the skill to measure and construct in those forms where the number of pupils is less than 30, as well as in the forms where teachers in the training process provide the time for pupils' self-assessment in relation to the specific task conditions, evaluation criteria.

After discussions with the teachers we had the approval of our assumption that the superficiality of pupils is due to the reduced number of lessons (1 lesson weekly) for the acquisition of skills of Home Economics and Technologies. A. Dauge's cognition is significant that acquisition of handicraft technique has also an educational role that undeniably affects the character's upbringing, creates patience, precision and attention (Dauge, 1924, 90), which is essential to the acquisition of pupils' life activity skills.

It is nice that recently most teachers are looking for new assignments and tasks in collaboration with pupils so that it would be pleasant and interesting to work. In practice, we were convinced that pupils are bound by a practical activity which leads to the pupils' interest, such as acquiring the skills to cook salad (Table 2).

Table 2

Acquisition of pupils' life activity skills in Latvia

No.	Characteristics of the acquisition of **nutritional education** skills	Characteristics of the acquisition of general **handicraft technologies** skills
1.	- a large number of pupils in the classroom, - work in groups, - procurement of materials and equipment depends on teachers, - restless working atmosphere, - positive emotional atmosphere, - a classroom is not suitable for the acquisition of nutritional education.	- pupils' materials and tools, - acquisition of work skills (individually, in pairs, in a group, collectively)*, - with regard to the personal development aspect,* - with regard to the educational aspect. **with regard to the teachers' work organization.*
2.		

After discussions with the pupils, it was found out that there are few primary schools where pupils acquire skills planned in nutritional education, those are only 5%. Mostly this curriculum of Home Economics and Technologies is acquired by pupils theoretically, there is the absence of opportunity to acquire the essential basic requirements for form 3 specified in the standard of the subject – *to cook simple dishes, without the use of heat treatment; to be able to lay the table for a simple daily meal, to deal with cutlery, to behave during the meal time.* For all pupils to acquire the planned training content in the primary school at housekeeping by considering the necessary safety and hygiene requirements it is denied by the classroom layout, incomplete material technical base. There is an apparent contradiction between theory and practice, since nowadays there is the idea that all people together are supposed to learn to manage a household and plan their life in the conditions of the 21st century. The justification of pupils' life activity acquisition can be discovered in primary education standard, in the objective of the subject of "Home Economics and Technologies" – to develop the learner's understanding of the safety and quality conditions in the human environment and the quality of security conditions and opportunities of their improvement, to promote the learner's practical activity and the development of social cooperation skills, ... (*Noteikumi par valsts* …., 2006).

In the study of Home Economics and Technologies cooperation skills can be successfully acquired by doing a pair, group or even collective work. J. David believes that an effective group is the one in which pupils are able to successfully fulfill the tasks, at the same time each pupil is ready to take on different roles in a group depending on the requirements of the task. When assessing a pupil's ability to work well in a group, the teacher has to encourage the pupils, to motivate them to analyze their own performance in order to encourage each pupil's achievements (David, 1991, 23). Collaborative skills, according to S. Rone, are one of the most important life skills in the pupils' preparation for life activity. The main findings of the humanistic interaction are to help the pupil to self-develop, which is one of the main components of the life activity. It is directed to develop initiative, self-control, self-esteem (Rone, 2006, 374). Thinking about pupils' life skills acquisition and growth opportunities at school, in the study of Home Economics and Technologies it is necessary to promote pupils' self-organization skills, develop self-discipline. The research found that self-esteem in the study of Home Economics and Technologies is built gradually and as a result becomes a habit of only 33% of the schools involved in the research. In the rest of the schools teachers negotiate with pupils, figuring out what was easy and difficult for pupils, but it does not provide the pupils with the opportunity to assess themselves by specific evaluation criteria

J. Azārovs believes that a clever pedagogical control activates autonomy. An adult's and child's mutual cooperation in the education process always consists of two layers. The first layer – it has to be felt, but not excessive, so that the second layer – autonomy – could freely develop. The author emphasizes that leadership teaches many things but it suppresses the craving for independence, it does not give much effect (Azārovs, 1986, 162). The research in Latvia within the period of several years indicates that the learning process is mainly dominated by the frontal work; teachers use the explanatory illustration method (Volāne, 2013, 106).

There is a different situation in Cambodia, where children's life since childhood is intimately connected with the acquisition of life activity skills. At the age of five, according to Dayaneetha De Silva, they start looking after their younger siblings. At the age of ten, girls are expected to help their mothers with simple household tasks, while boys have to look after the family livestock (Dayaneetha De Silva, 2001, 22). It is to admit that the situation is similar to what was the observation in Latvia in 1920s, when in the school lesson plans it was specified that there were 4 lessons a week planned for handicrafts and work in the school garden both in form 1 and form 2 (Tautskolu rokdarbu ...,1925).

Dayaneetha De Silva considers that a large number of pupils do not finish primary school. Many children drop out to help their parents earn a living. Cambodian children often have to drop out of school to work and support the family. Many of them work as street vendors, factory workers, and tour guides. International and local organizations are working to get children out of the work force and back to school (Davaneetha De Silva, 2001, 24). According to the data of 2004 the primary school was finished by 24% of pupils, but substantially higher percentage is the number of pupils who have not completed the primary school (56%). (Keo Phoung, 2004, 279). Visiting a Cambodian school, it is to admit that the education system described in the literature was really confirmed. I must

say that the autonomy acquired in the family and a serious attitude toward the school contributes to the pupils' life, acquisition of necessary work skills, including ability to cooperate (Table 3).

Table 3

The acquisition of pupils' life activity skills in Cambodia

No.	Acquisition conditions of pupils' autonomy	Acquisition characteristics of agricultural work skills
1.	Living conditions, including a big number of children in a family. Necessity (care about the survival); Poor material resources, Traditions.	Pupils' work in groups: • in agriculture – growing rice all around the year; • in poultry farming – chicken farming, A pupil's autonomy, without a teacher's supervision; Assessment – the crop obtained.
2.		

In the course of the study the Cambodian pupils' high level of autonomy was astonishing. At the handicraft lesson pupils worked independently without a teacher's supervision. The teacher's main and the most complicated task were to prepare assignments for 46 pupils in the form, to create the conditions for carrying out the group work. Primary school pupils acquired a skill to grow rice, as well as mastering a skill in poultry farming, i.e. to grow poultry chicken. There is only one criterion for the acquisition of skills – the crop obtained, which ensures each pupil's responsibility and a serious attitude to work to be done. Observing the pupils at work, I must say that D. Prets' cognition was confirmed that working in groups, taking into consideration the conditions of task completion, the pupils' thinking becomes more critical, reaching better learning results (Prets, 2000, 174). In the group work pupils are more involved in the learning process, than it is possible at a traditional lesson. The most important thing is that the pupils added their own experience with other group pupils' experience. I must admit that the pupils' high level of autonomy caused admiration in Latvian teachers. As a result of discussions with the teachers we found out that the living conditions, the environment is one of the conditions for pupils' autonomy, responsibility, because from an early age children are supposed to take care of their brothers and sisters, they are responsible for each other (Table 3).

It is to admit that the experience in Sweden reveals another model of acquisition of the study content of Home Economics and Technologies in the aspect of pupils' life activity acquisition. With regards to the study content there is no difference with the study content of Home Economics and Technologies in Latvia. The main difference is in the organization of work, in material support and technical base, in the layout of the handicraft room. Pupils - both boys and girls acquire life activity skills in a peaceful atmosphere; they work in small groups, consulting with the teacher (Table 4).

During the study it was observed that it was important for pupils to deliberate themselves in this work, especially if the acquiring skills were applicable to real life conditions. We ascertained that at the lessons of Home Economics and Technologies pupils acquire life activity skills more successfully if there is an opportunity to improve their experience in accordance with the logic of development, in the corresponding environment for each personality. Building of pupils' qualities (patience, independence and cooperation) in activity is no less important in the pupils' life activity acquisition process. Pupils' life activity skills are expressed as the results of activity, behaviour, attitudes, which are determined by the internal need for joy, satisfaction and awareness of the importance of the value, significance of the acquired skills.

Table 4

Acquisition of pupils' life activity skills in Sweden

No..	Characteristics of **textiles** skills acquisition	Characteristics of **metal and wood working** skills acquisition
1.	- a form is divided into two groups (one acquires work skills with metal and wood, the other with textile materials) - pupils learn life activity skills individually, - boys and girls learn together, - excellent material technical base, - school materials and tools, - a favourable learning environment, - a calm working atmosphere, - serious attitude to work	
2.		

After consultations with the teachers we found out that pupils do not feel the acquired life activity skill as a necessity but more like one of the self-actualization capabilities. It can be explained with the high level of development in the country and a peaceful atmosphere in the family.

Summarizing the results of the study, it can be concluded that in the study of Home Economics and Technologies it is important to organize the learning process so that the pupils acquire life activity skills as self important. At the same time the results of the research led to the belief that pupils need to increase the number of lessons (2 lessons per week) for practical sessions. During the research it was found out that the acquisition of life activity skills is more effective when combined with the acquisition of new technologies, non-traditional activities, and pupils' previous experience.

Conclusions

In the course of the research, we found out the conditions in the primary school pupils' life activity skills acquisition in the study of Home Economics and Technologies:

- the unity of theory and practice during the acquisition of study content,
- appropriate learning environment that facilitates pupils' self-organization, self-discipline skills, satisfies pupils' desire to act in accordance with their capabilities and the need to assert themselves,
- connection of pupils' self-evaluation with particular task conditions, assessment criteria in the learning process,
- living conditions, the environment that facilitates pupils' independence, cooperation and responsibility,
- the significance of pupils' qualities (patience, independence and cooperation) in the process of the pupils' life activity skills acquisition.

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Development professional education and career

Entrepreneurs' decision-making skills development role of the small and the medium-sized enterprises promote development

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Abstract: Small and medium sized businesses are the cornerstone of the country's economy. The company ensures the efficient functioning of the country's economic development, stability and prosperity of its citizens. Small and medium-sized businesses are able to timely respond to changes in market conditions and in line with restructuring of their operations. Small and medium-sized enterprises to increase the efficiency of the national economy are an absolute priority. The study aims to analyse the success of business decision-making process, revealing young people's decision-making skills in business development need to increase the long-term small and medium efficiency. The research methodology is based on the literature on business decision-making analysis , the author's established model of decision making , interviews with successful entrepreneurs and young people in decision-making promotional business experience gained in promoting "green" business farm "Dangas" and conducting activities "in the green business incubator" analysis. The results obtained reveal the need for business decision-making and entrepreneurial skills to organize targeted at school and university is designed for decision-making in business development activities in the formal and non-formal education.

Key words: decision-making, entrepreneurship, decision-making skills development.

Introduction

In current economic conditions in Latvia it is necessary to support entrepreneurs and particularly business start-ups, providing them with practical instruments for decision making. Decision-making skills, as concluded in Latvian Ministry of Economics of the project "Labour Market Demand medium and long term forecasting system development" is essential for the strategic skills needed for economic development that will promote entrepreneurship. There is a need for managers - the decision-makers who are able to deal with an unprecedented challenge, to develop and test hypotheses (Projekta „Darba tirgus pieprasījuma ...", 2013). Decisions of entrepreneurs in small and medium-sized enterprises (SMEs) is a topical area of research (Ivanova, Gibcus, 2003; Lynch, Wilson, 2009; Sarasvathy, Berglund, 2010; Negahban, Baecher, 2012), since SMEs are becoming increasingly important in the economic development factor (Acs, 2006; Dimitratos, Petrou, 2010; Rosenbergs, Gaile – Sarkane, 2012).

Latvian study on students' development of the competitiveness of Commercial informal environment revealed that the vocational and career education. It is necessary to interest and motivate young people to become entrepreneurs in the future. Decision-making in business is closely linked with a host of development of competitiveness and competition law formed at school. Today no student cannot compete in the labour market with knowledge who are often alienated from learning. Therefore at school it is important to get professional self-experience that can provide non-formal commercial study (Katane, Kalniņa, 2010). Ensure that young people entering the labour market and business environment, getting the opportunity to acquire the necessary skills to their future needs and goals. Another problem is determining exactly what skills will be needed in 20 years, but may be essential elements of skill, and one of them is a problem-solving and decision-making (Nākotnē stratēģiski...2013). Financial literacy - building study of young people (Putniņa, 2012) showed that the company is mainly young people perceived as passive actors and trainees. Young people themselves see themselves primarily as consumers postpone their implementation capacity at a later date. At the same time pro-active behaviour and employment opportunities for the use of school time increase financial literacy and provides a better starting position in the business. However, topical educational system's ability to adapt to the needs of the request, so the need for close cooperation between business and schools (Projekta „Darba tirgus pieprasījuma ... ", 2013).

The study aims to analyse the successful and less successful entrepreneurs' decision -making process, revealing young people's decision-making skills in business development need to increase the long-term small and medium efficiency.

Methodology

Entrepreneurship is disclosed to a person 's ability and willingness to accept and create new economic opportunities (new products , new production methods, new organizational schemes , new market combinations) and to implement their ideas in the market uncertainties and other factors interfering conditions (Carree, Thurik, 2003; Bowe, 2011; Soh, Maine, 2013). The author's established business model of decision-making (Dimants, 2012) in the decision-making steps which were taken into account when analysing the success of business decision-making and creating activities for young people 's decision-making skills development - i.e.: the problem or the objective of the case study, which includes internal and external business environment analysis to find the solution or target opportunities, alternative analysis and decision-making are influenced by: host personality (knowledge, experience, values, properties), preparation for the implementation and operation - activities decision.

Author based on research findings that decision making is the choice of the best alternative for reaching the set goals, based on the correct understanding, estimation, analysis and prognosis of internal and external environment of enterprise (Moore, 2009). The adequacy of decisions according to the effectiveness criteria depend on: competency of a manager, his personal qualities and his system of values, professionalism and motivation of employees and experts, fullness and objectiveness of information, decision making methods used, existing financial, time, material and human resources (Currie, Teale, 2005). Factors which influence decision making: stable or unstable business environment, accessibility of resources, accessibility and quality of information, personal qualities of an entrepreneur, former successes and mistakes, professionalism and motivation of personnel, level of risk, social and personal responsibility (Moutinho, Rita, 2006). Often intuitive decisions are made (Mescon, Albert, 2001; Kahneman, Klein, 2009; La Pira, 2011).

Young entrepreneurs and decision-making skills in business development orientations taken by the World Economic Forum's report on global education initiatives in formal and informal educational settings ideas: learning experience - learning by doing, skill build business plans, projects to start - up, analyse the situation development, self-efficacy and creative thinking - the ability to think “out of the box” development (Educating the Next..., 2009). To check and correct theoretical algorithm of decision making 50 successful entrepreneurs who themselves are decision makers in their sustainable SME were interviewed (including 24 entrepreneurs from the list of Latvian millionaires). Successfulness of entrepreneurs was evaluated according to 3 criteria. As successful were considered those entrepreneurs, who corresponded to 2 of the following 3 criteria: wealthy (personal income exceed 90 000$ per year + there is real estate); well-known professional (manage itself its business + high professional in its field); holds high status in society (elected position + play important role in politic life of country).

Consisted of 15 questions about the business decision-making process (Dimants, 2012), of which, according to major purpose of this article is as follows: From what age the entrepreneur started to develop the career? What means the entrepreneur uses to make the right decisions? Personal qualities that help the entrepreneur to make the right decisions? How the entrepreneur thinks and acts to make the right decisions? What factors interfere with making the right decisions? How the entrepreneur acts in non-traditional situations? How the entrepreneurs make the decisions? What percentage of the decisions made are successful? What the entrepreneur does itself during decision making and implementation process? Questionnaire for successful entrepreneurs is a tool for qualitative research. It includes multiple choice questions and open ended questions for detailed descriptive answers. For qualitative processing of collected data the content analysis of answers of open ended questions was carried out, systematization, classification and interpretation was performed. To make codification for SPSS program the full overview, systematization and interpretation of all answers was performed.

Grounds for issue of business decision-making skills development role of small and medium-size enterprises in promoting young people's involvement in the decision-making business skills found within the World Economic Forum report on global education initiatives in formal and informal educational settings; in the idea of entrepreneurial ecosystem (Educating the Next..., 2009) (Figure 1).

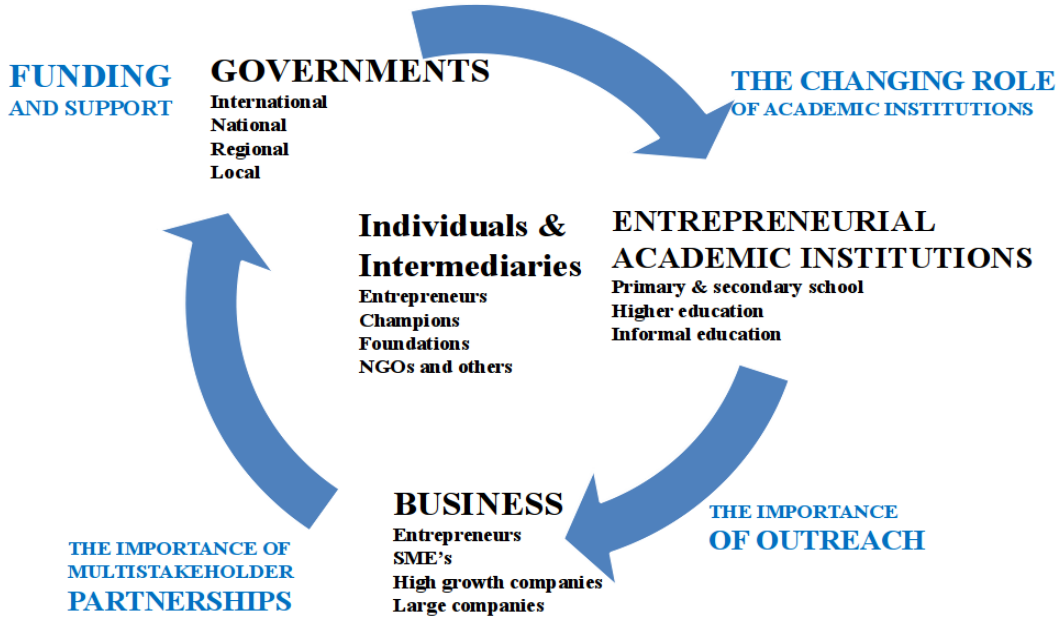

Figure 1. Entrepreneurial ecosystem **(**Source: Educating the Next Wave of Entrepreneurs, 2009, 16)

We analysed 120 students from the University of the success from various schools in Latvia decision-making promotional business experience in promoting "green" business of farm "Dangas" and conducting activities "in the green business incubator". Farm "Dangas" is the 12 years old company and the 2 years old ecological farm which is accredited by the deer breeding official farm.

Results and discussion

Successful business results of the interviews showed that successful entrepreneurs evaluate, that 86% of their decisions were successful. 6% of successful entrepreneurs began to think about their future career before age 15. 24% of successful entrepreneurs started to develop their career in upper secondary school. This shows that these respondents even in school age were purposeful and ready to make relevant decisions. Intellectual potential of an entrepreneur is important in the decision making process: all 50 entrepreneurs as the first, most important set of tools for successful decision making list knowledge, skills and experience. In the second place are talent and abilities. In the third place are readiness's to analyse, to plan, to conclude. Successful entrepreneurs usually make decisions individually – 76%. Successful entrepreneurs usually make decisions relying on intuition – 68%.

Young people - students - decision-making promotional business experience, the analysis showed that the essential skill for young people to identify and define the problem or task of starting a business. Appropriate to young people from the decision-making process is a set of tasks, the concept of "problem" they associated with difficulties and obstacles for generation of business. Important decision-making skills of the youth activities in the 'green business incubator ' where young people in a practical way companies use past experience in decision-making, decisions on a company form, placement, and resource extraction, use, develop business plans and create products, creates new ideas the business potential offered challenges that enable them to fulfil the dream to be an entrepreneur, to develop their own vision of the future ambitions.

The approach is, for example, young people have created "green" gardening, eco- tourism businesses. In this way, the implementation of youth financial literacy - building study the recommendations

(Putniņa, 2012): a regular operators in the school, sharing practical experiences in the long term, the entrepreneur becomes a student mentor, is designed for young people for future economic base and develop an understanding of the value of money; get a real picture of the labour market and business environment. Since farm "Dangas" implemented "green" business, and as one of the most stable future developments are recognized as "green" industries (Projekta „Darba tirgus pieprasījuma ...", 2013) then young people with an understanding of socially responsible business and sustainable development. It is also designed an understanding of learning as a system that creates business innovation (Gemmel, 2011; Sanchez, Carballo, 2011).

Author of the article in collaboration with the Ogre City Council consists of expert panel, is dedicated to providing information about the business, develop business skills to support teachers and pupils businesses with tips, materials and finance. Collaborative development is taken into account, the increase in future demand for specific skills. Creative problem solving; complex communication skills, including: know cooperation to implement the project, negotiating skills, influencing opinion without coercion, teamwork skills, ability to adapt to changes, ability to organize themselves, systems thinking. Youth activities in "green incubator" show the importance of family background (background - the generation in which business is business).

For example in a one seminar 3 of 6 existing farmers indicated that their farms have taken over from their parents. One of them said: "the main thing I was taught from my father is a love for work and patience, it helped him to create farm of the 60 cows. For this I am very grateful to him, but sorry that I will not gain the knowledge and teaching of cash and sale. I continue to sell milk for U.S. $ 0.18 per litre and understand that it is sufficient to pay, rather than development". So the role of the family is critical, it can teach the same basic business foundation - work, attitude and perseverance. In addition to expertise in the formal and non-formal education issue, but not all (the above seminar participant had completed vocational education) will receive a minimum of some of this knowledge. During the seminar it was found possible (area payments, biological contributions, etc.) to increase his budget by about 5,000 per year. It was developed in cognitive flexibility, which is an innovative decision-making based on and consists of a flexible approach to new previously unknown information perception (Parker, 2004; Little, Little, 2009; Gemmel, 2011; Sanchez, Carballo, 2011).

Young people are encouraged to use positive emotions in decision-making, as outlined behavioural decision theory, then positive emotions: strengthens resistance, which in turn helps to constructively handle a difficult situation, in case of injury, unleash energy, the enthusiasm with which the operator begins to something new, to promote social renewal - the relationship maintenance and rehabilitation (including post-conflict), develops the ability to raise capital (Hayward Forster, 2009; Sanchez, Carballo, 2011). Entrepreneurs dispositional positive affectivity: stable tendency to live in a positive frame of mind to feel positive emotions - the benefits are: career achievements, quality of social relations, the development of new risk, opportunity recognition and evaluation of effective decision – making (Baron, Hmielesky, 2012). Positive emotions are associated with the use of learning optimism because optimism is due to the treatment of other economy: entrepreneurs - optimists work more, they have positive expectations about life and business, strengthening the risk tolerance and promotes no pecuniary benefits: autonomy, accountability, sense of freedom. Practice shown that more optimistic entrepreneurs are signed cooperation agreements, notably - finance agreements (Landier, Thesmar, 2009).

For example, in July of 2013 Peteris Dimants (author of the article) and Latvian rural counselling centre seminar organized by 20 young people were divided into two groups. The task was 45 minutes to calculate the financial benefits to the farm using organic farming methods, contrary to conventional methods. The first team was led by deliberately negatively inclined moderator whose main task was to criticize the government and supervisory authorities by express sceptical conclusions about the business environment and so on. Group your tasks carried out 60 minutes. In addition to the need for young people by the moderator again expressed criticism positively minded task. The second team was led by the author of the choice of a strategy - driven exploration of possibilities. In the first 5 minutes young people have been inspired by telling them about the Latvian unique weather conditions, their impact on the environment, and the opportunities it offers. Only then was followed by work in

which the young people were encouraged by the expressions: “Super”, “you have succeeded”, “oh, this is something new”, etc. The second task of the working group took 28 minutes.

Article of presented study revealed a moot point. More than half of the surveyed entrepreneurs said that decisions are made intuitively, and young entrepreneurs, according to the practice of “green business incubator” is increasingly used in the decision-making method. However, the scientific findings and results from other studies on the accuracy of the intuitive decision is contradictory (Guzak, 2009; La Pira, 2011). Latvian small business managers in decision-making are based mainly on intuition, which can be recognized as one of the most prevalent forms of decision-making in small businesses. However, it is necessary to increase the formalized methods and analytical tools in decision - making process because, relying on their own knowledge and experience of drivers involved in a few other people in decision-making processes (Rozenbergs, Gaile - Sarkane, 2012) . Researchers recognize that intuitive synthesis is more pronounced in a precarious state, and it is in this situation positively related to performance. Rationality is a lower priority than instinct host behavioural development (La Pira, 2011).

This requires in-depth research to discover business intuition accuracy conditions. The scientific analysis of business decision-making indicates to: classical rationality (*homo economicus* = rational person) and neo – classical or bounded rationality – decision makers limited cognitive abilities - people have limited problem - solving capacity (Simon, 1977; Kahneman, Tversky, 1974). Kahneman and his colleagues found that intuition is not contrary to rationality; intuition is not a random process question (Kahneman, Klein, 2009). Intuition is complementary way to come to a decision and it is associated with knowledge and experience (La Pira, 2011). For example, it is necessary for at least one year run in the field to release the intuition. When planning the intuition of accuracy provided research and intuition unfolding workouts can be based on knowledge of insight in decision making (Mintzberg, Westley, 2001).

Important to explore how a host personal value system affects decision-making and implementation efficiency. The identity the dual status of economics and psychology. Economic Base: emphasis on rationality and social indicators, psychological assessment: focus on personality traits, the driving forces of social dynamics (Kahneman, 2003). Entrepreneurship is a specific area of research - a social mechanism that converts technical information products and services; mechanism to detect and mitigate inefficiencies in the economy, the basis for innovative products and services change. Given that the value of the system begins to develop in childhood and continues at school, it is important to conduct in-depth research into the interaction context. Youth business plan development and implementation experience reveals the need for early detection of young talent to help them build accurate decisions about their business building.

Conclusions

Formal and informal commercial study in school, vocational training, continuing education, career development support systems, business and management programs, it is important to introduce learners of all formalized, non-formalized and combined management decision-making and implementation of methods to control all decision-making principles to practical business process would operator to choose the most effective combination of decision-making principles to each case.

Young people - schoolchildren, students and business professional development programs be created by a single member and an understanding of the collective decision of the advantages and disadvantages. This makes it possible in any given situation an efficient decision-making and implementation options.

Host professionalism is characterized by his ability to identify significant factors affecting each local situation and focus on the evaluation of the impact of these factors. Therefore, the process of education required for the practical application of these skills in lessons. Necessary for a successful and socially responsible business people in teaching, learning and professional development programs to ensure effective analysis of the cases (case study) and to create the opportunity to gain practical skills in decision-making and preventing errors. It would be useful to involve the entrepreneurs in the Commercial evaluation of school programs.

It would be necessary to create a compilation of SME decision database. Of particular importance for SMEs decision database to students who have not yet encountered problems with various situations. The database can be self-classification, grouping decisions by: problems, scope of business, turnover, number of employees, etc.

Various decision-making methods are best used for different profiles and different size companies, as well as a variety of different scale and scope decisions. Therefore everyone, women entrepreneurs need to identify and learn the methods of group situations typical of his particular company.

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Social enterprise as an innovative resource in reduction of unemployment

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Abstract: Unemployment means that the human resources that are one of the manufacturing resources are not fully used. Thus the yield of gross product, possibilities of consumption of inhabitants and company investments reduces. If unemployment is permanent, the national economy in total suffers essential damages. Unemployment is actual problem both in Latvia and the entire world. Integration of social economy and social business activity in the practice of social work is considered to be very important future challenge of social work in the world for solution of unemployment and the social problems caused by it. The experience of other states indicated, that such theories, methods and approaches that are turned to increase of client knowledge, development of collaboration skills and promotion of social involvement are more and more acknowledged. In this survey it is assumed that the mutually supplementing elements that may be integrated in the service of innovative social work – in the model of social enterprise with long-term unemployed – are identifiable in the practice of social enterprise and social work experience. Information that is obtained by interview of social workers and representatives of social enterprise, as well as by execution of questionnaire of social employees is reflected and analysed in the practical part of the survey.

Keywords: long-term unemployment, social enterprise, social enterprise model.

Introduction

The results of state economic policy are assessed by dynamics of economic parameters or in comparison with parameters of other states. Dynamics of economic parameters is the assessment of certain economic occurrence in the definite period of time. The following parameters are used for assessment of economic policy results: gross domestic product, scope of export and import, state currency rate, Gini index, standard of living, scope of state debt, inflation and employment (Plotkāns, 2010, 46). Employment of inhabitants is important for welfare of any company. In its turn unemployment is a problem in any state because it causes negative economic, social and political consequences. Existence of unemployment above natural level means unmanufactured production and not gained income that are considered the economic damages caused by unemployment. Okun's law determine – if the actual level of unemployment exceeds the natural for 1 %, then the manufactured gross product falls back from the potential for 2 – 3 % (Šenfelde, 2012, 105).

Until 1990 the employment of people in Latvia was one of the highest in the world. It may be greatly explained by lasting extensive development of national economy, by implementing the principle of complete employment that on the one hand allowed to eliminate unemployment, but on the other hand determined low work productivity. The economic reforms initiated in the beginning of 90-ties for reorientation of national economy to market relations highly influenced the labour market. Since 90-ties in the result of changes of structural and property forms the amount of employed significantly changed. In the beginning of 90-ties the labour market had three main peculiarities: the general reduction of level of employment, distribution of labour force between sectors of national economy and distribution of labour force from national to private sector. Besides, the discrepancies between the request of labour force and offer both in quantitative and qualitative aspect became aggravated by causing unemployment.

On February 28, 2013 in Brussels (Belgium), there was organized the meeting of European Union (EU) Ministry Council of Employment, Social Policy, Health and Consumer Affair (Council) where agenda included also proposals for the Council decision on the basic guidelines of the employment policy of the Member States. Latvia supports the acceptance of Unified Employment Notification and

considers that the Member States of EU and EU in total has to continue the work that was initiated during the Semester of former Europe regarding strengthening of fiscal responsibility, solution of unemployment and social problems and improvement of competitiveness, implementing the required structural reforms in the respective political sectors (Informatīvais ziņojums…, 2013).

Specialists of the social work in the daily practice face and solve such problems of the clients that have occurred in the result of long-term unemployment. However, services and help that is offered until now, not always is efficient. Not always it is possible to impact the main problem – long unemployment that is the reason for lack of financial resources and other individual and social problems of other clients, therefore social employees have to look for new approaches in the social work. The experience of other states indicated, that such theories, methods and approaches that are turned to increase of client knowledge, development of collaboration skills and promotion of social involvement are more and more acknowledged. Lately more and more it is discussed on the social economy as perspective approach of social problem solution. The social economy is based on the social paradigm that complies with the basic principles of Europe social and welfare model and that is one of the keystones of the social model. Social economy has significant role for maintenance and strengthening of this model by regulation of manufacturing and offer of many social services. In order to reach the increase of economy, to promote the employment, implementation of training and individual services, there have to be developed models of social economy. Social innovation skills are significant for social economy for supporting the people who have difficulties regarding solution of their social problems. Employment of sufficient quality, training and reintegration has to be connected with it (Eiropas parlamenta…, 2009).

One of the forms of social economy expressions are social companies. In this survey it is assumed that mutually supplementing elements that may be possible to integrate in the service of innovative social work – social enterprise model (SEM) for work with long term unemployed may be identified in the social enterprise and social work practice.

Aim of the study: To analyse possibility of SEM application in the social work and to clarify the opinion of specialists of the social work on implementation of service based on SEM in the work with long-term unemployed.

Methodology

In the survey there are summarised and analysed the statistical data of Latvian Central Statistics Boards (CSP) and State Agency of Employment (SAE). In order to achieve the objective of the survey and get the reply to the issue of the survey on the opinion of social work specialists on implementation of SEM in the social work with long-term unemployed, there will be executed deepened expert interviews with social employees, expert interviews with social entrepreneurs and questionnaire of social workers.

Results and discussion

According data of "Eurostat", in September 2013 the average unemployment level in 28 EU Member States was 11.0 %, but in Euro zone – 12.2 % that is a new record of unemployment in the zone of united currency made by 17 states. In September 2012 the unemployment level within EU consisting of 27 Member States was 10.6 %, but within Euro zone – 11.6 %. In September 2013 in Latvia, the unemployment level was the 11th highest in EU (Financenet, 2013).

Records of State Agency of Employment (SAE) in the beginning of 2013 had 107,488 unemployed, but at the end of September – 89,435 unemployed (see Table 1). Status of unemployed in the period of January – September 2013 is granted to 79,311 person. Status of unemployed within January – September 2013 is lost by 94,797 people, whereof 59,831 person has found the job.

According information summarised by SAE, at the end of September 2013 there were 9.1 % of unemployed in Latvia. The lowest level of unemployment in September 2013 is registered in Riga region – 6 %, but the highest level of unemployment was in Latgale region – 18.6 %. Unemployment level in Kurzeme region was 9.7 %, in Zemgale region – 9.2 % and Vidzeme region – 10.7 %.

Unemployment level in the largest cities of the State in September 2013 was as follows: Riga – 5.7 %, Valmiera – 6.5 %, Jelgava – 6.9 %, Ventspils – 7.6 %, Jurmala – 8 %, Daugavpils – 8.9 %, Liepaja – 9.2 %, Jekabpils – 9.7 %, Rezekne – 16.3 %.

Table 1

Number of unemployed

Month	2011 year	2012 year	2013 year
January	164,551	132,575	107,488
February	164,880	133,413	107,687
March	163,454	132,158	107,063
April	157,857	127,783	102,760
May	149,600	121,994	97,769
June	142,428	117,606	94,754
July	137,638	114,689	92,975
August	134,175	111,542	91,202
September	131,659	108,322	89,435
October	130,541	105,670	
November	130,240	104,414	
December	130,296	104,052	

Most of all the unemployed registered in SAE were of simple professions – auxiliary workers, retail sales assistants, cleaners. In its turn, within unemployed with the higher education: the first place was taken by economists – in total 2,004 people or 15.5 %, the second place was taken by engineers – 1,604 people or 12.4 %, the third place was taken by directors/ managers – 1,325 people or 10.2 %, but the forth place was taken by teachers – 1.191 person or 9.2 %.

Although within last years the number of unemployed in Latvia has tendency to reduce, however, there still remains high ration of long-term unemployed. In September 2013 it compiled 38.5 % from the total number of registered unemployed. From total number of long-term unemployed 47.9 % were unemployed in age from 50 years, including. The average length of unemployment for long-term unemployed – 1,012 days (~2.8 years). At the end of September 2013 there were 8.649 young people unemployed (15 – 24 years) that make 9.7 % of total registered number of unemployed. In total number of young people unemployed 16.5 % were long-term unemployed (Maskaļovs, 2013).

It may be considered that economy has three sectors: the first – private sector of entrepreneurship that belongs to the private persons and that are motivated by profit; the second – state sector, and the third – social economy that embraces wide scope of society, voluntary and non-commercial activities. Social economy is non-commercial mass sector of entrepreneurship that is based on democratic values and is trying to improve the social, economic and environment conditions of the society, often turning to unfavourable members of society. The third sector may be divided in three sub-sectors; society sector, voluntary sector and sector of social enterprises (SE) (Sociālā ekonomika…). The social economy enterprises are managed like companies that manufacture goods and provide services for market economy however they also manage their activity and divert profit to implementation of social and company objectives. It is characteristic that social economy enterprises grow from the wide range society development strategies by involving the citizens, government, voluntary sector, and field of entrepreneurship, educational institutions and other partners.

In the recognition on the topic "Social entrepreneurship and social company" it is said that Europe faces the problems that need solutions that unite economic and social welfare. Promotion of social entrepreneurship and social enterprises, particularly in the current tough economic conditions, would give the possibility to use both the increase potential and the added social value. In order to use the mentioned potential, there should be made general political system, for implementation of which there is involved great range in interested persons from all the society groups (political society, private sector, public sector) in all the levels (local, regional, state and Europe level)" (Eiropas ekonomikas…, 2012).

In order to reach the economic increase, to promote employment, implementation of training and individual service objectives, there have to be developed models of social economy. Social innovation skills are significant for social economy for supporting the people who have difficulties regarding solution of their social problems. Employment of sufficient quality, training and reintegration has to be connected with it (Eiropas ekonomikas…, 2006). Professional mobility of the labour force is significant condition for balancing of the request of labour market and offer. The professional mobility of the labour force obtains significant meaning in the changes of Latvian national economy field structure, when passing to the economy based on knowledge.

Although the social companies are not sufficiently assessed as instrument for reach of employment objectives, they provide the possibility of work for people, who otherwise would not be employed – young mommies, people with particular needs, old people, etc., by causing conditions in which the employment capacity are improved and the risk of getting into "dependence of benefits".

SU is characterized by the fact that the integration object (what type of integration, depends on each certain social objective of SE) is reached by help of suitable support and productive activity. The productive activity is the type how to promote employment, but by suitable support we understand the creation of work conditions adjusted to the peculiarities of the social group (UNDP Regional…, 2008). Integration of social economy and social entrepreneurship in the social work practice in the world is considered to be a very important challenge in the future social work for solution of unemployment and the social problems caused by it.

Conclusions

- The main problems of economic development and employment that are identified in the development of the national economy of the Republic of Latvia and employment in strategic and political planning documents comply with the legal acts of EU and documents of political planning within the employment. However, the development process not always is based on sufficiently detailed executed labour market analysis.
- Basing on the foreign experience, by assessment of success and failure, there have to be found and defined those criteria that have to comply with the social company in Latvia, because the concept of the social entrepreneurship is only in stage of creation.
- By summary of data obtained in the interviews and questionnaires, it should be concluded that the majority of the surveyed social workers have information on different activities, that may be included in the sector to the social economy, but there is no complete comprehension on the essence of social enterprises.
- Majority of respondents support implementation of Social company model in work with long-term unemployed and themselves would be ready to involve and be the part of the process of SUM based service implementation, but are not ready to stimulate and undertake the provision of such service.
- By assessment of interviews with representatives of social enterprises (SE), it may be concluded that they are representatives of different professions, but with knowledge and skills in the field of the entrepreneurship. The current SE is collaborating mutually and considers the possibility to popularize SE practice in Latvia by making the association. Unemployed people who are motivated to work are involving in the current social enterprises, but the representatives of SE are wishing that these people already had the required skills and tools.

SE representatives support the possibility to create employment to social groups however they consider that it is required to improve the communication skills and tolerance as well as attraction of representatives of assisting professions in SE activity.

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Training teacher at pedagogical practice of students – the partner of academic teacher

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Abstract: The author deals with problems of pedagogical practice of students of teaching of vocational subjects and practical training in the long term. From the theoretical and practical point of view are analysed the possibilities of development of competency of training teachers. The Institute of Education and Communication (IEC) realizes teaching practice at training secondary vocational schools that are contractual workplaces. The author is engaged in demands on qualification of training teachers and condition of the development of their professional competency. The possibilities and necessity of further education of teachers of vocational subject are analysed. The suitability of use of good examples of practice of teachers is explained. The training teachers become qualified co-workers of academic teachers.

Key words: Education, preparation of teachers, further education of teachers, pedagogical practice, training school, competency of training teachers

Introduction

Controlled teaching practice is part of the teacher training curriculum at the Institute of Education and Communication of CULS Prague (IEC). The content and extent of teaching practise results from accredited curricula. IEC organizes teaching practise at secondary vocational schools. These schools are accredited training schools, they are contracting workplaces of IEC and participate in the management and organization of teaching practice.

During the teaching practice IEC students gain the necessary experience and skills. Students are familiarized with the teaching and educational process in the form of observation, teaching performances and by studying the curriculum. Pedagogical praxes teaching experience allows IEC students to apply acquired pedagogical knowledge and skills into practical educational activities.

In the teaching outcomes, students should demonstrate that they are able to creatively approach to teaching and the use the activation methods. They should also apply the curriculum to more practical examples, look for new approaches to teaching, to the possibility of using modern means of teaching in teaching units to the pupils themselves.

New approaches of students during their Creativity, updating, activation methods, modern means and new approaches to students during their teaching practice of course assume new competences of IEC teachers and undoubtedly even of training teachers of secondary vocational schools.

Methodology

The author of this paper uses descriptive methods, based on experiences of IEC students with the organization and management of teaching practice in training vocational schools. Further, the author uses analytical methods, which evaluates the professional competence of training teachers and possibilities in further education of teachers of secondary vocational schools. He uses methods of explanation in the implementation of appropriate examples of practice in the educational process.

Qualification requirements for training teachers

Training teachers are significantly involved in the teaching practice of students. They must meet all qualification requirements. One of the important qualification requirements is also their pedagogical education (mostly obtained at IEC). In order to responsibly guide IEC students and transmit their teaching skills to them, training teachers must have excellent long-term results in the educational

process. Training teacher guides the work of entrusted IEC student throughout his teaching practice in teaching "his" subject.

At the beginning of teaching practice, training teachers introduce students to IEC subjects´ curriculum, to thematic plans and assign him or her with a section in thematic plans to teach. Before each teaching performance, the training teacher should check student's preparedness for teaching and closely analyze the lesson with him or her afterwards.

Training teacher must always be an example for his or her younger colleagues. Less experienced training teacher sometimes tend to have lower demands on the IEC students and does not always find enough time for a really detailed analysis of the student´s lesson. Some training teachers focus on the professional level of the issue, sometimes at the expense of analysis according to evaluating criteria.

Beneficial solution of this situation is close cooperation between a less experienced training teacher with an experienced person from IEC teaching staff. They can perform joint analysis of the students' lessons. Suitable are also their analysis of observations, where training teachers present their own teaching competence. It is necessary to unify the look and performance evaluation of the student according to various criteria.

To improve the skills of the training teachers in educational practice, there are regular seminars organized for them at IEC. Contributors to these seminars are invited experts from relevant institutions and IEC teaching staff. There is always enough space for answering questions, confronting views and comments, as well as for the search of common procedures.

Development of training teachers' professional competences

Professional competences are based on teachers´ professional standards. They can be defined as an ever evolving system of professional qualities. Professional competencies include full range of the performance of the teacher profession. This includes the full set of a teacher's knowledge, skills, experience, attitudes and personality preconditions, which are interconnected. Professional competences of teachers of vocational subjects in secondary schools include discipline and subject, educational didactic, general education, diagnostic and interventional, social and communicative, management and regulatory and professional and personality cultivating competencies.

Of the professional educational-psychological disciplines the students (teachers of vocational subjects) will acquire knowledge of pedagogy, psychology, didactics of vocational subjects, pedagogical-psychological diagnosis, teaching work ethics, education management, youth biology and school hygiene, environmental education and skills linked to teaching practice.

In addition the student will gain competence in the field of transformation the knowledge of given field into the educational content of a taught vocational subject, he or her will be able to find and process information in their field, to improve user skills in information and communication technologies, and to transform the methodology of cognition in the given field into the mindset of students in the given vocational subjects. A graduate handle the strategy of teaching and learning at secondary schools and vocational schools in theoretical and practical terms, in connection with knowledge of psychological and social aspects.

For their work as teachers of vocational subjects and for their further (lifelong) learning IEC graduates dispose of professional, pedagogical, psychological and methodological competences for performance of some professions. Above all they can work as teachers of vocational subjects at secondary vocational schools and training institutions (many of them cooperate with IEC as training teachers alongside their teaching practice). They are ready for other professions in the field of agricultural education and extension as well. Completion of this study will allow further training of post-graduate type in the pedagogical field.

Further education of teaching staff

The legislative basis for the area of further education of teachers are currently Act No. 563/2004 Coll., On teachers and on amendments to certain laws (Zákon č. 563/2004 Sb.) and public notice No.

317/2005 Coll. On the further training of teachers, the accreditation committee and the career system of teaching staff (Vyhláška č. 317/2005 Sb.). Act No. 563/2004 Coll. On Teachers and amendments to some laws (Zákon č. 563/2004 Sb.) in principle establishes three important areas of work of teachers:

- it specifies the requirements for becoming a teacher,
- it sets some conditions for direct educational activities,
- it introduces new conditions for further education and career development system.

The law establishes an obligation of further education for teachers. Terms that the law uses - restoring, fixing and completing of qualifications - correspond with the term deepening of qualification under the relevant provisions of the Act No. 262/2006 Coll., Labour Code -§ 141a (Zákon č. 262/2006 Sb.)

The law also provides for teachers' opportunity to participate in further education to improve their skills. In accordance with the Act No. 262/2006 Coll., Labour Code -§ 142b paragraph 1 (Zákon č. 262/2006 Sb.) increasing the qualification means also the acquisition or extension aimed among other things at performing specialized methodical, methodological and management educational activities. Hereby it also sets the right and obligation of further education of teachers.

At secondary vocational schools that IEC cooperates with and that participate in the organization and provision of students' educational practice, the obligations arising from the above-mentioned law or regulation are respected. Training teachers and all their colleagues increase their competences throughout their professional life in various forms of lifelong learning.

Examples of good practice

Experienced teachers of secondary vocational schools, among whom training teachers have a unique position, should pass on their experience. Through appropriate and inspiring examples of good practice they should share their teaching experiences and results and help other teachers to find effective teaching methods and solutions to everyday pedagogical problems.

Examples of good practice show us that there are methods, processes, techniques and activities that lead to achievement of the goals more effectively. Examples of good practice can be defined as more efficient and effective ways leading to the pursued aim, based on repeatable procedures that may prove useful elsewhere and that can be applied by a bigger number of people. Their application is desirable in all forms of education.

In the field of education good practice is defined by the Research Institute of Education as follows:

- outcome of efforts of effective education,
- specific successful method of working with pupils,
- an appropriate theme, which can be used in school life as a whole,
- an opportunity to learn from other schools and to use good ideas that have proven successful.

The aim of examples of good practice is to share teaching experiences and results and to help other teachers with finding effective teaching practices and solving everyday pedagogical problems. Examples of good practice could be based on the following areas:

- experience from teaching,
- project-based learning and student projects,
- school curricul,
- school climate, school self-evaluation and school curricula,
- social partnership.

Examples of good practice are aimed at all educators in all types of vocational schools. They can cover all areas of pedagogical educational work, but they should apply to vocational training.

Within the project Curriculum S - support of the general introduction of school curricula in vocational education more than a hundred examples of good practice from different fields of education was collected thanks to teachers. With pleasure it can be said that examples of good practice of training teachers of secondary vocational schools with which IEC closely cooperates were among them.

Discussion

Guided Practice Teaching is part of the study programs at the IEC CULS in Prague. By participating in guided teaching practice and its successful completion the IEC students compound the qualifications of teachers of vocational subjects and practical teaching in secondary technical and vocational schools (Dytrtová, Sandanusová, 2010).

Training teachers from secondary vocational schools have to meet the qualification, organizational and methodological requirements. For a successful and responsible teaching is important prerequisite to be an expert in given profession. The teacher´s professional equipment also includes the ability of didactical transformation (Slavík, Miller, 2001).

Professional competencies of teacher are based on professional standards. Competencies express complex of knowledge, skills, attitudes and experiences that are targeted categories of the profession of educators. The teacher is to acquire and develop them throughout his career, including the stage of training and lifelong learning (Slavík, 2012).

During their teaching practice IEC students must be able to creatively approach to teaching and to use of different activation methods that lead to the achievement of the objectives. Teaching creativity and the art to motivate students are important attributes of the teacher's personality (Miklošíková, 2009).

Using the examples of a good practice is one of the positive moments in the educational process in secondary schools. Experienced teachers can share their knowledge and skills to their colleagues and thus streamline their teaching activities (Šumavská, 2011).

Conclusion

Guided teaching practice at training secondary vocational schools is an integral part of the preparation of teachers of vocational subjects at IEC. Teaching experience as well as the pedagogical studies at IEC in general contributes to the development of competencies of its graduates - future training teachers.

Leaderships of training secondary vocational schools with which IEC closely cooperates guarantee that selected teachers show excellent results at pedagogical work and that they meet the qualification requirements for training teachers of vocational subjects.

To ensure the quality of teaching throughout the whole educational process practicing teachers must constantly focus on development of their professional skills, which are based on the teacher’s professional standard. During their further education training teachers continue to consolidate and develop their professional, pedagogical, psychological and methodological competences.

In the curricula for continuing education IEC seeks to develop professional competencies of vocational teachers, future training teachers. Experienced training teachers transmit their experience not only to IEC students during their teaching practice, but also to their colleagues. Within the use of examples of good practice they are looking for new methods, techniques and activities that more efficiently lead to fulfilling of demanding tasks.

IEC teaching staff also bases their teaching of pedagogical disciplines on examples of good practice. New methods and approaches are applied not only during teaching but also during collaboration with training teachers considering the management and organization of teaching practices. The aim of IEC will be to continue to increase training teachers' pedagogical skills and to prepare knowledgeable and competent teachers able to fulfil their educational mission.

IEC organizes conferences and seminars and thus provides post-graduate further education of teacher with focus on training teachers. Thus a base of external collaborators group of who are involved in higher education is created. Training teachers from secondary vocational schools are important collaborators of the IEC university teachers. Their mutual cooperation is not limited only to the educational experience of students. They mutually influence their teaching activities.

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Rational and irrational aspects of decision-making by business executives (CEOs) in various cultural environment

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Abstract: As shown by the financial crises experienced in the 20th and 21st centuries, in situations with a high degree of uncertainty CEOs often make inexact decisions. For this reason, scientists discuss CEOs decision-making processes by emphasising the important role of business intuition and simultaneously asking the question about how correct such intuitively taken decision can be. As identified in studies, the practice confirms the importance of intuition in decision-making in business. The methodology applied by the authors in the study is based on Daniel Kahneman's concept of bounded rationality in decision-making in certain conditions and studies conducted into intuition, insight and creativity of CEOs in business in the last few years (2007 – 2012). The **aim of the study was**: to investigate the relations between the decision-making process and cultural environment, rational and irrational aspects of CEOs decisions, and to develop recommendations for sustained development of enterprises business. Results of a interviews and survey on the decision-making process in business, which included CEOs (n=77) from various countries (Latvia, Estonia, Russia, Italy, Brazil, Czech Republic), are presented to show the benefits and restrictions of rationally and irrationally carried decisions. The results reveal the role of precise intuition and impact of cultural environment in decision-making and sustained business development.

Keywords: rational and irrational decisions, bounded rationality, intuition, cultural environment.

Introduction

When sharing experience on the coefficient and restrictive factors of the business environment, various researchers and CEOs (Chief Executive Officers) stress decision-making skills as an important factor that affects the efficiency of a business enterprise. It has been concluded that inaccurate and irrational decisions made by CEOs cause and magnify situations of crisis in economics, as well as in the sustainable and competitive development of business enterprises.

At the second part of the 20th century an in-depth search for the explanations of such situations began, and at the beginning of the 21st century the Nobel Prize in Economic Sciences was awarded to a scientist named Daniel Kahneman for the development of a conception that justifies the role of various psychological and economical aspects in the decision-making process, revealing that a bounded rationality is in place if a CEO lacks confidence in the process of the decision-making. A conclusion was made that also in economics and business environment psychological irrational factors affect judgment, decisions and behavior. Therefore it is possible to notice an increasing interest from the researchers to study the rational and irrational factors behind the decisions of CEOs, and one of the most important questions, both from the scientists and CEOs, is on the integration of rational and intuitive decisions in a successful approach to lead a business entity and ensure its sustainable development.

The above-mentioned question justifies the general notion among CEOs on the importance to research how the intuition is connected with decision-making process in a business environment.

The aim of the research was: to investigate the relations between the decision-making process and cultural environment, the rational and irrational aspects of CEO's decisions, and to develop recommendations for sustainable development of business enterprises.

Methodology

When stress to the decision-making skills as one of the basic competences of CEOs is made in terms of managing situations of crisis and reducing the business risks (Bolt, 2005), the importance of irrationally made decisions in terms of heightening a situation of crisis is also admitted (Wang, 2008). The research of D. Kahneman and his colleagues (Kahneman, Tversky, 1984; Kahneman, 2003) revealed the role what a phenomenon, termed bounded rationality, has in the decision-making process, substantiating the assumption of the official economic theories as proving deficient explanations for the human behavior, when treating human behavior as rational in an economic environment. Various paradoxes of economic behavior are analyzed, and the analysis reveals the existence of the bounded rationality: 1) decision-making in the influence of a social group; 2) asymmetrical reaction to gains and losses; 3) anchor effect – the use of analogical situations and actions (Kahneman, 2003).

The bounded rationality as a concept was used already at the end of 20th century also in the analysis of decision-making process of CEOs, signifying that the rationality of CEOs in the process of decision-making is bounded by deficient information, time and cost limits, and the cognitive processes of CEOs in terms of the perception and analysis of the information (Harrison, 1999; Fabac, 2010; Villadsen, Rosenberg, 2010).

When researching the bounded rationality, a conclusion has been made that various irrational psychological factors, which cause and affect the bounded rationality, are cogitative schemes that affect the way of thinking and subjective logic, which not always is rational. For making a quick decision, people tend to use simplistic judgment manners, which Kahneman called heuristics (Kahneman, Tversky, 1984; Kahneman, 2003). Heuristics is defined as unconscious approach to streamline a complex situation and an analysis of probabilities: in the prior-consciousness of a person's psyches, assumptions are made on solving a given task, with the use of streamlining a complex situation (Kahneman, 2003).

The importance to research the bounded-ness of rationality is signified by the recent research, which turns to the significance of rational decisions in economics, business environment and management (Fabac, 2010; Cahchere, Haymaker, 2011). In the research on rationale clarity, several preconditions have been formulated in order to achieve it; they are termed to statements, made in the process of decision-making, for an example: inner coordination, accuracy, relevance, consistency, credibility, and correctness of statements, and whether they are convincing (Chachere, Haymaker, 2011).

The research of bounded rationality, in order to find out psychological irrational factors, turns to the research of emotional factors in the process of economic, business and management decision-making (Klein, 2003, Berezin, 2009; Miron-Shatz, Stone, 2009); the role of sensitiveness in the process of decision-making (Sadler-Smith, 2007; Mikolajczak, Balon, 2012). The research on the role of sensitiveness in the process of decision-making is one that has turned the attention to the question of the importance of intuition in the process of decision-making.

D. Kahneman and others, turning to the analysis of the intuitive decisions have pointed out their limitations: reasoning of an intuitive decision more often than not is stereotypes that have found a permanent place in one's experience, excluding other information that might be of importance; vivid, easy to remember situations; repetitive situations. Overly obvious is the presence of irrational and inappropriate elements, and therefore the research of these processes becomes a challenging goal (Miron-Shatz, Stone, 2009).

However in business conceptions (Sadler-Smith, 2007) and insight managing processes (Adler, 2010) a question is put forward: how great is the impact of a CEO's inside intuition in the business decisions that are made; that is often viewed as an irrational occurrence, though in practice, as researchers have revealed, it approves the role intuition plays in the decision-making process in the commercial setting. For an example, intuition influences effective business decision-making, creative thinking of entrepreneurs, and flexible behavior (Mitchell, Friga, 2005), which in turn aids to the quick recognition of the business opportunities (Klein, 2003). The intuition of entrepreneurs, as researchers have argued, is based on experience, emotions, experience of particular tasks, experience of making decisions, however, meeting a new challenge, for a successful entrepreneur the argument of the

decision is a subjective sense on what actions should be taken in a particular situation (Mitchell, Friga, 2005).

When paying attention to the inside intuition, researchers put forward a question on how informative the instinct is when business decisions are made, as it is traditionally viewed as irrational and quantitatively non-measurable phenomenon; what is a gut feeling, how to use it when making decisions (Sadler-Smith, 2007). Realization on the gut feeling in the research of decision-making process has been derived from cognitive neurosciences, evolutionary psychology, where this phenomenon is defined as a feeling based on instincts, base feeling or reaction, intellect of unconsciousness, that has a descriptive characteristic of being able to connect subliminal – beyond the level of consciousness, that is not directly under the control of consciousness – signals with consciousness and behavior. The gut feeling is an instinctive feeling, intuitively positive or negative reaction to an outside stimulus that indicates whether the decision-making process corresponds or mismatches to the decision maker (Klein, 2003; Sadler-Smith, 2007; Gigerenzer, 2008). It has been stressed that intuition is deeper feeling, which human beings have been developing for thousands of years, it is a reaction based on neurological processes, which in turn aid in controversial situations or in situations, when information is incomplete, quickly making an optimal decision (Gigerenzer, 2008). Researchers' stress that everyone has an experience in making intuitive decisions, however, the problem lies in accurate and effective use of the intuition (Sadler-Smith, 2007; Gigerenzer, 2008).

In the times of commercial globalization it is of importance to research CEOs from various countries and their notions on intuition and its influence on decision-making process in commercial environment, as that may assist in finding out the ways of effective use of intuition. Various researches reveal the link between problem-solving, decision-making and cultural environment of CEOs (Partapuoli, 1998; Chhokar, Brodbeck, 2007; Cimdiņa, 2012). In the aspect of comparing the rational and irrational decisions of particular research-developing interest is the conclusion on local market, where entrepreneurs are more often affected by affective factors, unlike global market, where instrumental factors (e.g. factors connected with actions and results) factors are of greater impact.

The research was conducted from July, 2012 until December, 2012; it is based on data from 67 CEOs from different countries: Latvia – 26; Estonia – 10; Russia – 12; Italy – 16; Czech Republic – 1; Brazil – 2. The research participants represented profitable small and average business entities that operate for more than four years, signifying, according to researchers' conclusions (Mitchell, Friga, 2005; Klein, 2003), competitiveness of their CEOs.

In order to research CEOs' notions on the role of intuition in the decision-making in a commercial environment, following methodology was used: 1) direct, semi-structured interviews that discussed aspects on intuition in the process of decision-making, rational and irrational factors, impact of the cultural environment; 2) a questionnaire made by the authors of the article on the decision-making process of the CEOs, from which in the article following questions have been analyzed: the degree that CEOs use different approaches to make decisions in practice; the factors which influence that decisions are not often rational and precise; the level of CEOs' acceptance to different opinions on intuition, and to what degree each opinion assists them in making of successful decisions. Interviews were conducted before the questionnaire in order to update the questions included in it, and the interviews were conducted with ten CEOs (5 from Italy, 3 from Latvia, 2 from Russia). The interview participants did not take part in questionnaires. Questionnaires were taken by 57 CEOs.

For grouping of the research results, the content analysis was used, differentiating between following categories: understanding of the term 'intuition'; notions on the accuracy of an intuitive decision; notions on factors that influence the accuracy of an initiative decision; notions on the meaning of intuition in terms of making an optimal decision; notions on the influence of a cultural environment for CEOs in the decision-making process. From the interview transcripts content units were extracted, and later – coded and the frequencies of the code categories were calculated. The results of the questionnaire were achieved by using descriptive statistics (in the article for the purpose of data analysis using the average arithmetical unit (M); by correlation of the research results; by using Pearson's correlation coefficient. The aim of the correlation analysis was to determine how the notions of CEOs are connected on what intuition is, how it assists in the decision-making process, with the

decision-making modes, and notions on it, why decisions are not made rational and accurate. Using the $\chi 2$ test, the correlation between CEOs' nationality and ethnicity was determined. In the data processing and analysis a computer program SPSS version 19 was used.

Results and discussion

In the interview content analysis of the category **understanding of the term 'intuition'** the most apparent codes were: 'inner realization, gleam', which can be defined as insight (5 cases out of 10); 'voice of the instinct', which can be detected through physical feelings and in the following insight consciousness (4 of 10); 'one of the main forms of the cognitive power', which is connected with the laws of nature (3 of 10); 'the ability to see opportunities as an answer to a particular problem' (3 of 10). It needs to be marked out, that in 3 cases interviewed CEOs view intuition as an explanation of insight connected with notions, that intuition is one of the main forms of the cognitive power, which is connected with the laws of nature, and in 2 cases with the explanation 'the ability to see opportunities as an answer to a particular problem'. In the category **notions on accuracy of an intuitive decision** the most apparent codes were: 'an intuitive decision is accurate' (7 cases of 10), because, as interviewees added, 'intuition is accurate'; 'intuitive decision is partly accurate' (3 of 10), because, as interviewees explained, 'intuition is accurate, though not always one is able to precisely fulfill it'.

In the category **notions of the factors that influence accuracy of an intuitive decision** the most apparent codes were: 'influence of the emotions' (6 cases of 10), for an example, 'when making a decision it is possible to be influenced by various kinship, affective ties, and as the result, the implementation of a strong intuitional decision will face powerful deviations'; 'the lifestyle of a CEO' (5 of 10), for an example, inability to manage time that causes exhaustion and inaccuracy of feelings; 'the ability to implement the initiative idea in social context' (5 of 10), for example 'one can have a great intuitive idea, though if it fails to be materialized, it has no value'; 'person's ability to reflect his or her intuition' (3 of 10). The code 'person's ability to reflect on his or her intuition' in some cases (3 of 10) is linked with the code 'the lifestyle of a CEO', for an example, 'because the lifestyle is more correct and authentic (for a CEO it is more physically, psychologically and mentally appropriate), and because the chance is greater for the consciousness to reflect the signals of the intuition'.

In the category **notions on the meaning of intuition in making an optimal decision** the most apparent codes were: 'intuition ensures the making of an optimal decision' (5 cases of 10); 'intuition partly ensures the making of an optimal decision' (5 of 10), because, as interviewees explained, 'with only an intuition it is sometimes not enough, high degree of professionalism is also a must, as well as knowledge of culture and laws'. In the category **notions on the influence of CEO's cultural environment in the decision-making process** the most often used code was: 'the cultural environment does not have a substantial influence on a CEO's decision-making' (8 cases out of 10), because, as interviewees explained, the ability to be flexible in linking rationality with intuition is more important, and rationality, as it was implied by interviewed CEOs, also implies the knowledge on various cultural particularities. For an example: "*I have to sell leather goods to an Arabian business partner; I will sell them, only those not from pigskin. A river has to make its way to the sea, the way it takes, that is relative.*"

In the research question **what factors influence that decisions are often not made rationally and precisely**, the mean deviations of the results (M), according to the scale: 1 – I disagree with the given statement, 7 – I completely agree, reveal that a pronounced factor is 'the personal experience of a decision maker: beliefs, values, likes and dislikes' (M=5,17), comparatively less pronounced factor is 'the limited abilities of a decision maker' (M=4,75), average was the agreement to the factors: 'a lot of information, it is complicated, it is not possible to profoundly research it' (M=3,43) and 'insufficient information and knowledge (M=3,33). It is possible to observe the domination of an opinion on CEOs personality as one of the key factors that influence the accuracy of rationality and create its limitations in the decision-making process.

The mean result indicators (M) of **the questionnaire's question: to what degree CEOs use various decision-making approaches in practice**, in the scale: 1 – do not use, 7 – use always, revealed equal value of the decision-making approaches (Table 1).

Table 1

Results of the decision-making ways of CEOs' decisions (N=57)

No.	Description of the decision-making approach	M
1.	Reliance on rules and principles; accustomed reactions; unified traditionally accepted process	3,33
2.	Reliance on personal judgment, intuition, creativity, inspiration, rules developed in personal experience	3,33
3.	The possible gains are valued and the value of every alternative is calculated	3,33
4.	The goal is formulated and the alternatives are researched until one that corresponds to the goal is found	3,33

The results (Table 1) indicate a tendency that every decision-making approach, correspondingly to the mean deviation, is used in every second case of making a decision on average, and no preference is given to any of the approaches named.

The questionnaire's question: **to what degree CEOs agree to different notions on what intuition is, and to what degree each of the notions assists to them in successful decision-making**, mean deviations of the results (M), according to the scale: 1 – I disagree with the given statement, 7 – I completely agree and 1 – does not assist in the decision-making, 7 – significantly aids in the decision-making process, reveal the pronounced nature of CEOs' notions (Table 2).

Table 2

Results of CEOs' evaluation on the notions on intuition and its role in the decision-making process (N=57)

No.	Notion on intuition	Agree with the statement	Assists in the decision-making process
1.	Intuition is an alternative way to problem-solving	4,83	5,33
2.	A basis that guarantees success, even if the person does not know the principles on which intuition operates	5,67	5,67
3.	Behind every success/ profit lies a CEO's intuition	5,83	6,08
4.	Intuition assists in using the outside conditions in a functional manner	5,75	6,08
5.	Intuition assists in sensing the point where the events are seen in the best possible way for the implementation of the chances	6,25	6,25
6.	Intuition reveals: what at first seems hostile, dangerous, turns out to be a profitable business	5,83	5,92
7.	Intuition is the first thing that comes in mind	4,58	4,83
8.	Intuition is the identification of the primary sources, because at once the are no two sources and no two options, therefore intuition hands the best results	6,58	6,25
9.	Intuition is a surge of the enlightenment, and then the decisions are made, listening into one's own gut feeling	5,83	6,08

The results (Table 2) reveal that agreement to the questions of the questionnaire is average high (M=4,58; M=4,83) and high (M=5,67 – M=6,58). A more pronounced is the view on intuition as an identification of primary sources (M=6,58) that corresponds to the argument of the researchers (Sadler-Smith, 2007; Gigerenzer, 2008) on the substance of intuition. Such a view assists in the economy of time, financial and energetic resources that are used in a long evaluation of alternatives and doubts. An analysis of the correlation reveals that important ($p<.001$ – $p<.05$) and positively close correlations are between all the arguments on the evaluation of intuition and observations on the degree to which a particular notion assists in the decision-making process ($r= .75$ – $r= .97$). Less direct was the correlation between the views on intuition as a surge of enlightenment and making appropriate

decisions, listening to the gut feeling, and the degree on which such a decision assists in the decision-making process (r= .69).

Analysis of the correlation revealed important (p<.001 – p<.05), though negative, average close and close correlations (r= –.54 - r= –.70) between traditionally approved rational decision-making approaches: the reliance on rules and principles, accustomed reactions; unified traditionally accepted process; the evaluation of possible gains and the value calculation of every alternative; the formulation of goals and the research of alternatives until one that corresponds to the goal is found – and the view on intuition as the grounds that guarantee success, even if the person does not understand the working principles of intuition; the view on intuition as something that assists in a functional use of outside sources; the view on intuition as a surge of the enlightenment, and then making a decision, listening to the gut feeling. Results also revealed a negative, important (p<.001 – p<.05) link between previously mentioned rational decision-making approaches and the views that a high degree of assistance to CEOs' – research participants' – decision-making is for the following views on intuition: intuition assists in functional use of outside sources (M=5,75); in sensing the point where events are seen in the best possible light for the implementation of the opportunities (M=6,25); it is a surge of the enlightenment, and then the decisions are made, listening into one's own gut feeling (M=5,83).

Controversial are the results that reveal that decision-making approach: reliance on personal judgment, intuition, creativity, inspiration, rules developed in personal experiences, that is defined as in intuitive, individual experience based decision-making approach (Harrison, 1999; Adler, 2010) – is noticeably (p<.05) negative correlated with the view that intuition assists in functional use of outside sources (r= –.70) and the degree on which the decision-making is aided by the view that: intuition assists in sensing the point where events are seen in the best possible light for the implementation of the opportunities (r= –.61).

The analysis of the correlations also revealed important (p<.05) correlations between the views of CEOs on why decisions are not often made in a rational and precise manner and views on what intuition is and how it assists in the decision-making process. For an example, an important factor that bounds rational decision-making was 'lack of information and knowledge', and it has an important negative correlation with the view that 'an intuition is the identification of the primary sources, because at once there are no two sources and no two options, therefore intuition hands the best results'. Such view signifies that such understanding of the intuition for CEOs – research participants – means a smaller tendency to blame the lack of information and knowledge for inappropriate decisions.

A factor that bounds the decision-making process "a lot of information, it is complex, it is not possible to research it in details' has an important negative correlation with the view that 'intuition is a surge of the enlightenment, and then the decisions are made, listening into the gut feeling' that aids in higher degree of the decision-making. Such result signifies that, in cases where a CEO in his or her personal experience has made sure of a precise intuition's (it defines the previously mentioned view on intuition (Sadler-Smith, 2007; Gigerenzer, 2008) usefulness, less common is the inability to deal with large amounts of complex information.

A factor that bounds rational decision-making 'decision makers bounded abilities and skills' has an important (p<.05), average close (r>.40<.60) positive correlation with the view that 'intuition assists in functional use of outside sources'. Meaning that if CEOs highly (M=5,75) admit the importance of the intuition in functional use of outside sources, then they highly (M=4,75) value subjective factor as a factor that bounds the decision-making skills: 'decision-makers bounded abilities and skills'. The analysis of the correlation also revealed that if higher valued is the agreement to such views and its use in the decision-making process 'intuition assists in functional use of outside sources'; intuition is a surge of the enlightenment, and then the decisions are made, listening into the gut feeling; intuition is the identification of the primary sources, because at once the are no two sources and no two options, therefore intuition hands the best results – then closer (r>.50<.70) correlation is with highly valued (M=5,17) rational and precise decision-making bounding factor: 'decision-making based on personal experience: views, values, likes and dislikes'.

The use of the $\chi 2$ test in the results revealed that CEOs' in practice use various decision-making approaches; factors that determine the fact that the decisions often are not made rationally and precisely; notions on what 'intuition' is, and to what degree each view assists in a successful decision-making; the evaluation is no direct link ($p<.05$) is link with CEOs' nationality and ethnicity.

Conclusions

Competitive CEOs – the best description for the research participants – evaluate a particular situation as a factor of personal importance in the decision-making process that assists in the making of optimal decisions. Research participants' notions on the meaning of intuition in the decision-making process of commercial environment to a rather high degree correspond to the views of scientists on the intuition a an instinctive base feeling that provokes a relatively high positive or negative reaction to outside stimuli, which indicates to adequacy or inadequacy to the decision maker in a particular situation of making a decision, and determines an optimal decision.

The interview data prove competitive CEOs' rationale clarity skill, which demonstrates an understanding of the individual cognitive and emotional factor bounding meaning in intuitively taken decisions. As factors that bound various intuitive decisions often name are: emotional influence; unbalanced, for a CEO physically, psychologically and emotionally improper lifestyle; inability to quickly reproduce an intuitionally sensed idea in the commercial environment; a particular decision maker's consciousness's limited ability to reflect his or her intuition. Factors, revealed in the questionnaire, that determine the reason of the decisions not being made rationally and precisely, the results of the evaluation also revealed importance of individual factors in the decision-making process: personal experience that includes opinion, values, likes and dislikes; bounded abilities and skills.

The analysis of correlations revealed that a more highly valued limiting factor of rational and precise decision-making was 'the personal experience of a decision maker: his or her opinion, his or her values, likes and dislikes' are greatly linked with notions on intuition and its use in the decision-making process, such as: intuition assists in a functional use of outside sources; intuition is a surge of the enlightenment, and then the decisions are made, listening into one's own gut feeling; intuition is the identification of the primary sources. Such result signifies that the acceptance of importance intuition has in the decision-making process assists in graining an understanding on limiting factors of subjective decision-making, and such understanding, as literature analysis reveals, can assist on improving decision-making abilities.

CEOs' notions on intuition, as the correlation analysis revealed, has an important link with evaluations on how a particular notion assists in the decision-making process. Since the research participants are competitive CEOs, such results reveal the meaning of intuition in the decision-making process of commercial environment. When viewing data from the questionnaire, similar conclusion could be drawn from the important negative link of rational decision-making approaches' evaluation with the evaluation of a view that in a decision-making process intuition assists in a functional use of outside conditions, in sensing the point where the events are seen in the best possible way for the implementation of the chances, in making a decision based on the gut feeling.

The research revealed no particular differences between CEOs of different countries and their notions on the meaning of intuition in the making of important decisions in a commercial environment. Interview results acknowledge a conclusion gained in the literature research that in the global market entrepreneurs' decisions are mostly affected by instrumental factors (ones' linked with actions and results), and valuable is CEOs' ability to flexibly connect rationality and intuition, since rationality embeds also notions on various cultural particularities, aiding in the commercial environment.

There is a need for further research that uses empirical methodology to find out how competitive CEOs in their practice use intuition precisely and effective, how do they integrate rationality and intuition in the decision-making process. The research results reveal a necessity to analyze current and future CEOs' integrative approaches to the decision-making process: rational and intuitive possibilities in the formal and informal education.

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Internet tools as a kind of career e-guidance

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Abstract: With the fast development of information and communication technology (ICT) and the Internet entering our life, we use the Internet daily for obtaining information and for entertainment, for education and spending leisure time, and as a serious profit-gaining source. The Internet and the opportunities it offers may be also used in career counselling. The purpose of using the Internet and Internet tools in career counselling is to help individuals, who need it, develop computer skills, obtain information regarding career choices or career development, as well as receive support from a career consultant. Consultations, information resources, and interactive evaluation tools may be received anytime – 24 hours a day. The paper includes the results of research on the use of Internet tools in career counselling. The overall research aim is to examine the use of Internet tools in career counselling. To achieve this aim, a questionnaire survey of practicing career consultants was conducted. The survey revealed the Internet tools that are used in providing career consultations. It led to a conclusion that Internet tools are one of the kinds of career e-guidance techniques. Internet tools in career counselling are easy-to-use interactive evaluation tools assisting customers make decisions concerning their career. The research findings will contribute to the understanding of the kinds and forms of Internet tools that can be used in career counselling as an additional consultancy technique or as the key kind of techniques in career e-guidance.

Keywords: career counselling, e-guidance, ICT, Internet tools

Introduction

Enhancing digital literacy and skills is one of the key elements of the flagship initiative "Digital Agenda for Europe". This initiative contributes to the implementation of long-term e-skills and digital literacy policies (Pamatdati par IKT izmantošanu…, 2011). Information and communication technologies (ICT) provide a variety of tools that can open up new possibilities for career counsellors in their work with customers and for educating career counsellors themselves. Introducing a virtual online connection and Internet tools in career counselling is aimed at assisting people who need to enhance their skills, acquire information, and get support and advice from a carer counsellor regardless of time and place. They can particularly help tailor the counselling process to individual customers' needs, and they can also provide customers with the crucial digital competences needed in knowledge-based society.

Online services provide new opportunities for civic education. The Internet becomes an educational tool that expands working in a local community to working in a global community (Guthrie, McCracken, 2010).

The possibilities provided by the Internet can be exploited for career counselling and/or rendering career planning services in four ways:

- providing information about professions, including descriptions of professions, employment opportunities, qualification requirements, etc., by using textual information, photographs, and graphical and/or video materials;
- providing online searches in professional databases;
- providing interactive career counselling and career planning services. This particular way ensures that customers, either individually or in groups, have direct communication with a professional career counsellor;

- providing access to databases on job vacancies to any user (Guidelines for Internet Usage, 2013).

An effective use of ICT in career counselling is determined not only by the existence of a technology, but by also its accessibility. Over the recent years in EU countries, including in Latvia, large investments have been made so that the population can have access to ICT, and it, to a great extent, was achieved. The data on Latvia are presented in Table 1.

Table 1

Availability of computers and the Internet in all households as of the beginning of the year
(% of the total number of households in the corresponding group**)**

2009		**2010**		**2011**		**2012**		**2013**		**2013/2009, percentage points**	
Com-puter	Internet	Com-puter	Internet	Com-puter	Internet	Com-puter	Internet	Com-puter	Internet	Com-puter	Internet
60.10	58.00	62.80	59.80	64.30	63.60	69.50	68.70	71.70	71.60	11.60	13.60

Source: authors calculation based on www.csb.gov.lv data

An analysis of the data for the recent five years leads to a conclusion that in 2013, compared with 2009, the availability of a computer in all households rose by 11.6 percentage points (PP), and the availability of the Internet increased by 13.60 PP. It means that the use of and interest in ICT increases along with the rapid development of ICT, and career counsellors have to seek to use new technologies in career counselling and to identify the best way of exploiting the new technologies and the factors that hinder the successful use of these technologies.
Data on the purposes of use of the Internet by individuals as of the beginning of the year are shown in Table 2.

Table 2

Purposes of use of the Internet by individuals as of the beginning of the year
(of the total number of Internet users, %)

	2009	**2010**	**2011**	**2012**	**2013**	**2013/2009, percentage points**
Sending or receiving e-mails	83.70	83.20	-	86.40	86.30	2.60
Making phone calls or video calls, using a web camera, via the Internet	49.10	52.80	59.20	61.20	59.40	10.30
Reading or downloading online news, newspapers, and magazines	72.20	76.70	83.90	88.00	84.80	12.60
Searching for information on education	35.70	37.50	42.90	-	41.10	5.40

Source: authors calculation based on www.csb.gov.lv data

According to Table 2, the following changes in the purposes of use of the Internet by the population in the beginning of 2013, compared with the beginning of 2009, occurred: sending or receiving e-mails rose 2.6 PP; phone conversations via the Internet or video calls, using a web camera, increased 10.3 PP; reading or downloading online news, newspapers, and magazines surged 12.6 PP; and searches for information on education rose 5.4 PP. One can conclude from the mentioned facts that the Internet rapidly entered everyday life, therefore, the available Internet tools have to be more broadly used in

career counselling and career education, as well as new tools have to be introduced and adapted based on the experience of other countries.

The overall research aim is to examine the use of Internet tools in career counselling.

Methodology

From April to May 2013, a survey of practising career consultants was conducted to gain insight into how career counsellors exploit Internet tools in their career counselling. In the survey, 42 career counsellors aged 24-60 were engaged – 6 men and 36 women. Of the total number of the surveyed career counsellors, 37 used information and communication technologies in their career counselling. As regards their affiliation, 17 worked in the State Employment Agency, 10 – within an ESF project of the University of Latvia, the Faculty of Education, Psychology, and Art, implemented in schools, and 23 – as carer counsellors in schools.

The overall research aim is to examine the use of Internet tools in career counselling.
Research tasks:

- to discuss theoretically the possibilities of use of Internet tools in carer counselling;
- to analyse the respondents' opinions on the use of Internet tools in carer counselling.

The legal framework and other information sources were used to achieve the aim and fulfil the tasks. Statistical data were analysed employing descriptive statistics, and a questionnaire survey was used to identify the possibilities of use of information and communication technologies. The research location: social networks.

Results and discussion

Nowadays, the use of information and communication technologies in many European countries is regarded as the basic element of support for carer development. Internet portal can provide information on education, training, employment opportunities, and easy-to-use interactive evaluation tools to assist customers in making their career decisions as well as intermediaries that provide information, consultancy, and development support services.

Career planning services are differentiated from career counselling services. Career planning services include an active provision of information designed to help a client with a specific need, such as review of a CV; assistance in networking strategies; identification of occupations based on interests, skills, or prior work experience; support in the job-seeking process; and assessment by means of online inventories of interest, abilities, and/or work-related values. Although career counselling may include the provision of the above-mentioned services, the use of the term implies a deeper level of involvement with the customer, based on the establishment of a professional counselling relationship and the potential for dealing with career development concerns well beyond those included in career planning. Multiple means of online provision of career planning or career counselling services currently exist, the most common of which are e-mail, newsgroups, bulletin boards, chat rooms, and websites offering a wide variety of services. In a long-term, the use of potential technologies is likely to increase (Guidelines for Internet Usage, 2013).

Multimedia tools have been introduced in career support portal to increase the popularity of these portals among youth, and presently among adults as well. Multimedia tools are used to educate the population in the filed of employment and career. Tests are also available on websites to assist their users in identifying their basic skills and interests as well as their suitability for various educations or careers. Interactive tools are available on Internet portal, which enable their users to examine opportunities fitting their skills, knowledge, and interests. Such possibilities assist the users in identifying a profession or a job that is appropriate for their interests and an education and training needed to do this job. Interactive tests are also often available on Internet websites to assist the users in raising their self-esteem by answering a range of questions about themselves, their talents, skills and interests when evaluating their interests, goals, and skills; youth can identify their most appropriate profession and acquire a list professions appropriate for themselves (Karjeras atbalsta…, 2010).

One of the most used tools in career counselling is online career tests. A test is a standardised exercise; upon its completion, an individual's intellect, abilities, suitability for a work, or other personal traits may be identified (Akadēmiskā terminu, 2013). Tests were used in Ancient Greece. "Get familiarised with oneself!" is one of the appeals what we have inherited from ancient Greeks, and even though such knowledge not always can be effective and useful, as ancient Greeks believed and as modern psychoanalysts believe, yet, it is obvious that the majority of population are very interested in their personality, temperament, intellect, traits of character, abilities, complexes, and other things (Aizenks, 2000). Tests posses 6 essential characteristics (Miķelsone, Strods, 2008):

- a test measures a certain feature (a personal trait, motivation, intellectual abilities);
- a test measures a particular and limited population possessing the measured psychic trait and certain socio-demographic characteristics (for instance, youth aged 11-16);
- a test is a standardised measure of a feature, as the same test procedures are applied to different individuals under equal conditions, a single scoring system is used based on a certain measurement scale, quantitative standards of the measured feature are identified, i.e. the frequency distribution of values in a population based on measurements of the sample;
- a test is reliable, i.e. its measurements are steady over time;
- a test is valid, i.e. it really measures the feature it was created for;
- a test is an objective measure, as the individual's test values are interpreted based on their position in the sample's values distribution (i.e. standards) rather than based on the counsellor's subjective opinion, as well as based on the test's credibility and validity. When a test is performed, it is important to a customer to understand the instructions, strictly follow them, while a counsellor has to process the data in accordance with the rules and to interpret the result achieved. In career counselling, tests of personal traits, achievements, motives, interests, values, intellect, and creativity, which may be verbal or practical, are carried out. Computer tests, which give instant quantitative and qualitative results and save them in the computer, are increasingly used.
- in Latvia, a very few such adapted tests are available (for instance, Holland, Amthauer, Ketel). Most often, the tests adapted to other countries are used (Miķelsone, Strods, 2008).

An analysis of historical data reveals that computerised psychological evaluations evolved through three stages:

- the conceptual and early research stage (from the beginning of the 20th century to the Second World War);
- the stage of practical use of systems, based on requests and direct needs;
- the open system development stage (Karjeras konsultēšanas…, 2009).

The conceptual and early research stage. Psychologists' efforts to create a technology that reduces the cost of administration/interpretation of psychological tests and surveys are characteristic of the early stages of this science. In 1928, Clark Hull designed a computing machine that could administer suitability tests and selected career recommendations based on the results obtained. Automatic processing of professional tests was started already in the 1940s, yet, a broad use of these ideas was possible only in the 1950s when electronic computers became widely available.

The technology's practical application began after significant investments were made in the educational system and especially in career counselling. The American Research Institute financed projects and initiatives in the field of counselling, which resulted in developing such computer programs as SIGI and Discover in the 1970s. The stage of the World Wide Web and the Internet began in the 1970s and they refer to the modern period, defining a new generation of systems characterised by free access to information through using computer networks of the whole world.

Computers themselves are not a specific career counselling technique, but it is only the application of the counselling functions that require algorithmic information processing and complicated calculations and operations which can be modeled and transposed, using a computer program that exploits a variety of electronic media resources/content (such as text, hypertext, images, animation, and sound), by means of certain equipment. Progress in computerised counselling turned computerised counselling into a special method (Karjeras konsultēšanas…, 2009).

Computerised psychological and pedagogical tests and surveys imply the use of a computer that automatically evaluates intellect, knowledge or training results, interests, abilities, values, or personal traits. The application of computerised methods in psychological testing takes over the various forms of technological functions that are used for the purpose of testing. Tests and surveys may be classified by individuals' interests, abilities, values, personality, etc. Internet resources that have a lot of textual materials and data and that are very structured obstruct reading. When counsellors work with their customers from remote places and with physically disabled customers who prefer their registration from home, videoconferences can be held (scheduled via e-mail) to present and discuss the interpretation of a test (Sampson, 2000).

Counsellors can communicate, using discussion groups, videoconferences, e-mail, or chat, not only with their customers, but also experts in the field of supervision, in cases of untypical test result interpretation, etc. When exploiting Internet testing, counsellors have to be aware of the potential problems that can arise and have to be adequately tackled. The credibility and confidentiality of testing may be endangered if a counsellor intervenes by providing counselling in remote territories without having sufficient information on the local situation, if the availability of the Internet and the information privacy in administering the test and in counselling are limited. Counsellors' attitude to the use of information technologies in their job ranges from full rejection to uncritical acceptance. A right approach would be "prudent optimism, which means that the counsellor considers testing potentially useful if a testing website is used by customers who are provided certain assistance and counselling (from a local authority's services to individual assistance services) that meet their needs" (Sampson, 2000).

In addition to informing about the potential problems, counsellors have to develop specific competences in providing Internet services, which would prevent from ethical problems, have to be able to evaluate the credibility and quality of specialised websites that they use and recommend, have to understand what level assistance customers need in any particular situation, and have to be ware of the search mechanisms and reference counselling websites they may integrate into their counselling. The special competences that a career counsellor needs for using the Internet are as follows:

- designing a website;
- navigating across forums;
- establishing e-mail accounts and using e-mail;
- assisting customers in their searches for information about counselling;
- observing the legal acts and ethics regarding Internet counselling services;
- understanding the strengths and weaknesses of Internet counselling;
- using the Internet to identify and access continuous learning opportunities;
- evaluating the quality of information available on the Internet (Karjeras konsultēšanas…, 2009).

Presently in Latvia, several free tests and surveys are available to career counsellors on the Internet, on the website of the State Employment Agency (Karjeras pakalpojumi, 2013), Interests Test for Youth, Interests Test for Adults, questionnaire "Professional Orientation" (identification of professional interests), Self-determiner "A", questionnaire "Examination of Interests", Self-determiner "B", questionnaire "Examination of Motivation – Motivation for Various Jobs", methodology "Professional Career Planning", survey "Job Seeking Strategy", test "Communication Strategy", Skill-age Test: Are You Ready for a Job?

The following tests are available on the website NIID.lv: Interest Test, Which study course I prefer most?, Multiple Intelligences Test, Personality Test, Career Values Test, Working Environment Choice Test (Karjeras izvēles testi, 2013).

Online career tests have several advantages:

- a test may be filled out according to one's abilities and swiftness;
- replies are given instantly after the test is completed;
- it is interesting to fill out an online test, and it develops computer skills;

- administering tests via the Internet has an advantage, as the number of potential customers to whom testing services are available increases because barriers created by distance or transportation problems due to physical disability disappear.

Disadvantages:

- limited access;
- customers do not wish to work with a computer or are afraid of it.

Youth and also adults are very interested in computer games; therefore, online computer games are designed and used for the purposes of career counselling. To make youth reconsider the choice of their profession, the social network Draugiem.lv offers an interactive game "Try on a Profession". A youth can adapt his/her most appropriate profession to his/her profile photograph on the social website Draugiem.lv. The game "Try on a Profession" offers youth to fit in any of the ten professions in an interactive way: information technology project managers, pharmacists, carpenters, chemistry professionals, confectioners, electronics engineers and constructors, labour protection professionals, foresters, tourism information consultants, and telecommunication design engineers. The game enables its users to find out interesting facts about a particular industry and profession, skills needed to a professional for a successful career, as well as useful information about where to acquire this profession. The interactive game "Try on a Profession" is available on the website (Valsts izglītības..., 2013).

The purpose of the world of professions is to expand students' views about a variety of professions/job positions and provide information on the specifics of a job and the requirements for employees in these professions or positions, as well as make students interested and wishing to profoundly study the world of jobs and opportunities for their own career.

The *world of professions* is designed as a virtual city consisting of objects – enterprises with their most typical professions. A description of every profession, an interview with an employee of this profession, a gallery of photographs, and opportunities for education in the profession are available in this world; in the future, videos will also be available. The Classifier of Professions of the Republic of Latvia was used to develop the structure and descriptions of professions. The portal *World of professions* is maintained by the State Education Development Agency's Information and Career Assistance Department (Profesiju pasaule, 2013).

Counselling services and career development services often combine the websites presenting general information with personalised services such as e-mail (phone calls or chat). Compared with the information obtained from websites, the advantage of e-mail is that the replies given precisely meet the customer's needs, which compels us to reconsider the concept of counselling and the potential changes in the counsellor's working style, replacing or improving the other counselling services. As regards the interaction between a customer and a counsellor, it can be asynchronic – with a short interval (e-mail, forums, post, the Internet) or synchronic – with no short intervals (a phone, teleconference, or videoconference) (Karjeras konsultēšanas…, 2009). Chat is individualised counselling based on online writhen communication.

From April to May 2013, a survey of practising career consultants was conducted to gain insight into how career counsellors exploit Internet tools in their career counselling. In the survey, 42 career counsellors participated. The respondents were asked, "What popular Internet tools do you exploit in your career counselling?" (Fig.1).

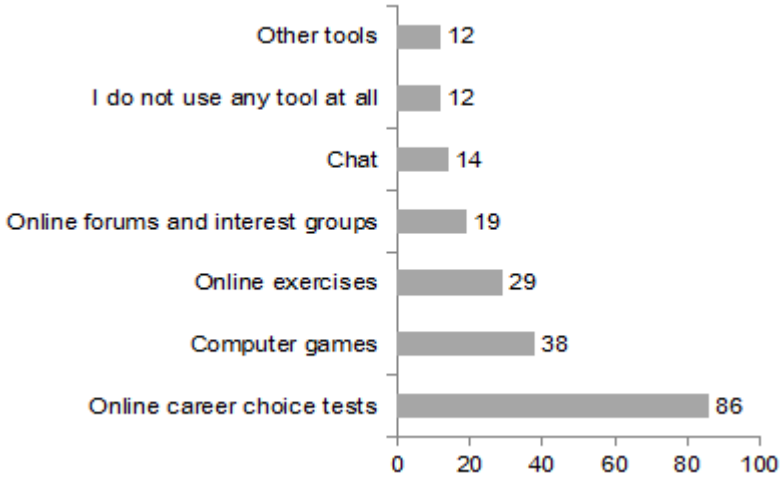

Fig.1. Respondents' replies to the question – what popular Internet tools do you exploit in your career counselling? The replies are expressed as a percentage. The data were obtained from 2 April 2013 to 20 May 2013 by anonymously questioning career counsellors, n=42.

According to Fig.1, in their work, 86% of the questioned career counsellors used career choice tests, 38% - computer games, 29% - online exercises, 19% - online forums and interest groups, 14% - chat, 12% did not use any online tool, while 12% mentioned that they used other tools, for instance, various databases, reference materials, portal NIID.LV (Karjeras izvēles testi, 2013), portal Profesijupasaule.lv (Profesiju pasaule, 2013), and e-mail for sending presentations and examples.
Watts A.G.(2002) argues that a very important question in career counselling is the synergy of technologies. A website has to contain not only courses and professional databases, but also a diagnostic package that, in the form of a document, provides evaluations and identifies skills, interests, and values (Watts, 2002).

Both risks and gains are possible if using Internet tools in career counselling. The key risk is fake identities in communication with a customer using e-mail. Professional activity on the Internet requires that counsellors assume the duty to identify themselves and their customers, using a phone or Skype.

The gains from using Internet tools in carer counselling involve the use of the Internet as a new way of providing career planning and counselling services. Upon gaining this professional career counselling experience in this environment, it is necessary to evaluate its effectiveness and conduct research in the Internet environment. The use of the Internet in informing customers about educational, training, employment, and other opportunities enables funds to be saved.

Conclusions

- Internet tools are one of the kinds of career e-counselling techniques.
- Internet tools in career counselling are easy-to-use interactive evaluation tools assisting customers make decisions concerning their career.
- Introducing a virtual online connection and Internet tools in career counselling is aimed at assisting people who need to enhance their skills, acquire information, and get support and advice from a carer counsellor regardless of time and place. They can particularly help tailor the counselling process to individual customers' needs, and they can also provide customers with the crucial digital competences needed in our knowledge-based society.
- In their work, 86% of the questioned career counsellors used career choice tests, 38% - computer games, 29% - online exercises, 19% - online forums and interest groups, 14% - chat, 12% did not use any online tool, while 12% mentioned that they used other tools, for instance, various databases, reference materials, portal NIID.LV (Karjeras izvēles testi, 2013), portal Profesijupasaule.lv (Profesiju pasaule, 2013) and e-mail for sending presentations and examples.

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Psychology

Perception of Kazakh metaphorical phrases with 'milk' component

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Abstract: Language serves as means of accumulation and storages of cultural-significant information. In some units this information for modern native speaker is implicit, is hidden by century transformations, can be taken only indirectly. Nevertheless, it is and "works" at the level of subconsciousness. In this regard, it would be desirable to designate an objective of this research. We consider phraseological units in the Kazakh language with 'milk' component. It is known that milk (*sut*), namely in combination "white milk" at representatives of the Kazakh people is connected with old food traditions. The Kazakhs had a nomadic way of life, milk, meat were their main food. For revelation of the Kazakh mentality peculiarity through a prism of food tradition, we selected 10 phraseological units containing "white milk" and "milk" component. The first task we put, to find out how the culture of the Kazakhs formed language concept "milk", how a language sign was attached to cultural sense "milk" and got language images, whether the Kazakh people receive these meanings at present time and how they influence upon speech strategy. During investigation used descriptive, ethnolinguistic methods and an experimental method.

Keywords: cultural code, linguacultural analysis, stereotypes, phraseological unit with 'milk' component.

Introduction

Problem of culture representation in language is one of the topical issues in modern linguistics. Linguistic description of food codes of particular culture contributes fundamentally to solution of this issue. In the frames of linguacultural direction a lot of researchers pay attention to study and depiction of culture codes realization in language image-system from the point of its cultural codes transmitting (Yurina E.A., Shestak L.A., Pimenova M.V., Gudkov D.B. etc.). Culinary art is one of the applied and significant fields of human life. It is a part of national culture and has its own symbolic context. It is commonly known, that food belongs to one of the main elements of certain culture. Food acts as a submitter of ethnical characteristics. Investigation of perception of image-system comprises complex analysis of metaphorical lexis, phraseological units, idioms and proverbs. At this rate, huge number of figurative words and phrases present system of food images. It demonstrates cultural food code implementation in image-structure of the Kazakh language.

Culinary art is one of the active fields of metaphorical expansion in each language. It has many evidences. Food is natural vital human necessities. Everything, concerning food (production process, cooking, ritual forms of eating or drinking) takes particular place in social and everyday spheres of life-sustaining activity. All these phenomena have their cultural-symbolic meaning (ceremonial, ritual, sacral, cultic) in every world cultures.

Mental images of food products are in memory of every man. It comprises many bright gestalt pictures, connected with various sensors (visual image, form, colour, smell, taste, temperature and even audio feelings). These images are due to sustainable associations with emotional and physiological human feelings like hunger, appetite, pleasure, anger etc. All these facts contribute to investigate material, psychological, mental and abstract-categorical spheres of reality. Such sensorial and emotional-psychological fullness of food images, their cultural-symbolical and cultural-valuable significance make food metaphor extremely effective means of emotional-psychological impact upon the addressee of speech and cause rate of its usage in modern discourse practices.

Methodology

One of the central issues for new lingua-cultural paradigm of research in phraseology is the concept the culture code, following from vision of culture as about semiotics system. From this point of view, the world is nature, artifacts, external qualities and internal properties of a person, acquired semiotics sense in the process of learning and perception. Hence it appears that system of cultural codes is hierarchically ordered system, opposed each other on any bases or intertwining among themselves. Moreover, each cultural code represents own semiotic system in which different material and formal means can be used for coding the same content consolidated as a whole to a world picture, to worldview of this society. "Cultural code is understood as a 'net' which culture "throws" over world, divides, categorized, structures and estimates it" (Красных, 2002, 232).

Thus, cultural code is a system of signs (sign bodies) of material world, which become transmitter of cultural meanings; in the process of development by the person of the world, they gained the significance, which is distinguished, decoded at their perception by the interpreter. Signs are transmitters of cultural meanings - can be of various characters: subject, behavioural, verbal etc.

Cultural code is a key link in interpretation of phraseological units, which are represented as process of language sign perception through a prism of cultural knowledge. The native speaker owns this knowledge in this or that volume to its competence. This knowledge "is interwoven" into a language sign and form its cultural semantics in the process of reproduction and perception of the phraseological unit in speech (Ковшова, 2006).

Concerning correlation between phraseological unit and culture codes, we mean its correspondence through word-components. Meaning of phraseological unit, as we know, cannot be brought out of meanings of word-components and is fixed in language memory of a native speaker. Being translators not only language, but also cultural sense, these word-components participate in creation of cultural semantics of phraseological unit. Behind them, there are realities of the world, and the realities, which have received a certain cultural significance. Respectively nomination of such realities becomes an embodiment of these or those cultural meanings (Телия, 2005).

Obviously, phraseological units in the process of speech correspond also to the most ancient layers of culture - archetypical oppositions, mythological and bible ideas of world arrangement, i.e. everything that lies in the depth of consciousness of a native speaker. So it even more complicates and without that a difficult picture of phraseological units functioning in speech.

As perception of cultural meanings of phraseological unit occurs at poorly reflexed or unconscious level, allow us to reconstruct this process, to certify its passing, on the one hand, results of associative experiment, but mainly, reflection of the researcher over process of reproduction and perception of phraseological unit in speech (Ковшова, 2006).

Scientist of lingua-culture relies, first of all, on own cultural and language competence and works with "deep introspection" method, which is a key in research of semantic processes. Pertinently to remind that also Lucien Tesnière in his work devoted to bases of structural syntax, in certain chapter "An introspective method", spoke about its importance and at the same time warned about its careful application. Lucien Tesnière wrote :"...Introspection reproach that it is difficult to use it, because it is too subjective and therefore it is dangerous... Introspective method it is possible to accuse of subjectivity because he appeals to intuition... However, besides, he appeals and to internal experience. Thereby this method becomes experimental and, therefore, objective" (Теньер, 1988).

In reality, "deep introspection" method allows reconstructing process of cultural interpretation at reproduction and perception of phraseological unit by the subject of speech.

Results and discussion

Figurative lexical and phraseological nomination based on assumptions from gastronomical field is in close connection with language expression of various objects and environmental phenomena from the speaker's point of view. Different features of food phenomena serve as valuable fundament for expression of own evaluation (rational) and emotional-evaluation (ethical, esthetical and different

other types of evaluation) relations to nominated objects. For instance, axiological relation to ideal phenomena (such as character, intellect, mentality, social behavior, social phenomena, and relationships) can be expressed by means of usage of food products' features and quality, processes and situations: ***Ана сүті ауызынан кетпеген*** (the mother's milk has not dried off one's lips yet) is about very young person, ***сүтке тиген күшіктей болды*** (look like a puppy, which touched milk) - 'sleazy, hangdog look', ***Сүт пісірім уақыт*** (time of boiling milk) – 'fifteen minutes' (Кеңесбаев, 2007).

Reconstructed cultural interpretation can be considered as the evidence of special sign function of phraseological unit - to convey cultural meaning which promotes understanding of interlocutors not only as transmitters of one language but also as representatives of one culture.

Let's take such phraseological unit as ***Ананың сүтімен еніп, сүйекке сіңген әдет*** (to absorb tradition with mother's milk).

Meaning of this phraseological unit - 'to acquire anything firmly since the earliest years'. It means that someone, thanks to environment in which he grew, organically perceived bases of its worldview, system of values, moral-ethical standards, customs with the help of his/her mother etc.

The phraseological unit's origin, obviously, has similarity to Latin saying: 'Ut poene cum lacta nutricis errorem suxisse videamur'. So we, perhaps, almost with milk of foster-mother absorb delusion' (Михельсон, 1994).

Let's take examples of phraseological unit usage, which meets usually in speech of educated people; in the dictionary this phraseological unit has a label 'bookish'.

Етінен өткен, сүйегіне жеткен, атадан мирас алған, ананың сүтіменен емген надандық әлдеқашан адамшылдықтан кетірген 'Ignorance, taken with the milk at the breast, inherited by the ancestors, got into bones and meat, deprives of a right of humanity forever.' (Abai Kunanbayev). *Сынның әдісін осылай түсіну осы күнге дейін көп сыншымыздың сүтпен еніп, сүйегіне сіңген әдеті болып келеді* 'To understand criticism nowadays in such way become destiny of many critics' (Karatayev M.). *Сүтпен кірген мінездің шынымен-ақ сүйекпен кеткені*'The character, taken with the milk at the breast, to tell the truth, can be taken out only by corporal punishment' (Кеңесбаев, 2007).

Let's try to reconstruct the process of phraseological unit correspondence with those layers of cultural knowledge which in this or that volume, depending on cultural competence of the native speaker.

It may be noted that the phraseological unit ***Ананың сүтімен еніп, сүйекке сіңген әдет*** (to absorb tradition with mother's milk) goes back to the most ancientconceptualization of feeding as natural digestion anything by a human body, feeding as a way of cultivation of all living.

Image of the phraseological unit "leads" the researcher to the most ancient mythological form of understanding of the world - animistic, i.e. to spiritualizing of manifestations of person properties. Archetypical opposition of soul and a body cause emergence of an image of the phraseological unit; also the phraseological unit causes semantic associations with bible ideas of food spiritual and food physical.

In the basis of the phraseological unit image lies metaphorical likening of spiritual education - to feed babies by breast milk and it defines the process of strengthened perception of anything.

A component *ену* 'to absorb' corresponds to anthropic set, i.e. actually human, and somatic, i.e. corporal, culture codes. An anthropic code treats, it agrees with developed by V.N. Teliya work, to the system of cultural codes, set of all manifestations of a person in his physical, relational or functional plans; to somatic - qualitative and quantitative characteristics of a body of a person, his pose, gestures, etc. Set of components *ананың сүті* 'mother's milk' corresponds to somatic, natural and gastronomic code, *ананың* "mother's" - to anthropic (namely family) culture code (Телия, 2005).

"Near with objective process there is effective, real and personified world of "the distorted reality", worldview, at the same time obliged to the existence to the first, and not related to its formal-logical sequence. Production, work acts, biological moments - everything is interpreted cosmogonically. What

can be more naturally and more vitally, than need of clothes or dwelling? And the act of feeding, every day and real and quite physiologic, doesn't cease to remain, though concerns a circle of certain images" (Фреаденберг, 1997).

It means that word-components of the phraseological unit "*ену/*to absorb", "*сүтімен*/with milk", "*ананың*/mother's" are the words, which have a situation, become sign in its cultural perception, because its components received cultural sense, distracted from the events in a concrete situation.

Thus, the image of the phraseological unit reports that the events in the world were seen through the process of feeding. "Not therefore, of course, that biological, real food gives to it any occasion; but because it is connected with production and labor acts more than something else; consciousness doesn't remain to it indifferent, but works round such important phenomenon - allocates it from context of reality, accents, puts forward on the first worldview plan, but, of course, comprehends it specifically, in categories of understanding of the world in general".

Although "*сүт*/milk" is also a special food - food for babies, it associates with life beginning, from beginning of perception of person's life. "*Ананың сүті*/Mother's milk" is the phrase specifying by the form of belonging something to someone, essence - her owner, the producer. At the same time, "*ананың сүті*/mother's milk" - realia endured in culture: it has special, conceptual sense - sense of birth of a baby and his first feeding, sense of basis, without which there is no continuation of life of a baby, sense of cardinal source of life. Besides, the realia "*ананың сүті*/mother's milk" contains sense of communication corporal, physical between mother and her child, metaphorically understood as communication between predecessors and successors of generation, so it means that cultural knowledge, traditions, bases of worldview.

Thus, in the phraseological unit ***Ананың сүтімен еніп, сүйекке сіңген әдет*** (to absorb tradition with mother's milk) we see not only set of word-components - ' to acquire anything firmly since the earliest years'. We see in this phraseological unit not only an image "read" from literal meaning of words making the phraseological unit, we find also devices – metaphor, underlying the internal form of the phraseological unit. The linguacultural view of cultural essence of the phraseological unit allows, by explication of cultural interpretation of the phraseological unit, to talk about its cultural significance.

Language significance and cultural content of the phraseological unit ***Ананың сүтімен еніп, сүйекке сіңген әдет*** (to absorb tradition with mother's milk) causes a special role of the phraseological unit in speech. It is like a standard, i.e. measure of assimilation by someone of moral principles, views, and to serve as measure of naturalness, harmony of any action assimilated to feeding of a child in infancy. Additional symbolical meaning of correctness, positivity of the acquired views, principles brings the component "*ана*/mother" symbolizing a perennial spring of good, love and warm-heartedness.

The phraseological unit ***Ананың сүтімен еніп, сүйекке сіңген әдет*** (to absorb tradition with mother's milk) as a cultural sign testifies: in desire to comprehend not household, but existential meaning of everything, that occurs in the world. An educated person gave to a usual situation - feeding of a baby by maternal milk - the symbolical sense connecting this situation to values, allocated with a person in the process of world understanding.

Thus, we tried to prove that the subject of speech, reproducing and perceiving the phraseological unit in the course of communication, not only shows the language competence - uses the phraseological unit according to its language meaning. At the deep level of consciousness the subject of speech carries out cultural interpretation of the phraseological unit, "coming out", with support of word-components, in space of cultural codes, transferring and receiving, certainly, not in the form of developed text, but in the form of impulses, associations, clots of images and emotions - cultural meanings of the phraseological unit. A researcher, modeling process of cultural interpretation, only gives it fullness and relative completeness.

According to our investigation, we have made a questionnaire among Kazakh students (18-22 years old), acquiring the Kazakh language as native language. There are 10 phraseological units. Each phraseological unit has two questions. In summary, we received 130 definitions and 130 associations

to these phraseological units. There are cases, when responders have difficulties with identification or no answer follows at all. The questionnaire is in written form. All responders are volunteers.

There are phraseological units to which all respondents identify correctly and have positive associations. All these phraseological units in their origin have positive history, concerning upbringing, tradition and customs. The phraseological unit ***Адал сүт емген*** 'to drink honest milk' means well-bred, educated, mannerly person (mostly this phraseological unit is for future brides). Let's see the usage of this phraseological unit in literary style.

Келін алып, қызығыңды да көре алмадым, мен бұл дүниеден озғалы жатырмын, анаңды сыйла...адал сүт емген әйел ал 'Having taken the bride, and pleasure I didn't see, I leave this world, respect mother... marry the well-educated girl' («Kazakh fairy tale») (Кеңесбаев, 2007).

Ақ сүтін ақтады 'to justify white milk' means to fulfill duty with a clear conscience, to comply with wish of parents. *Немересін баулып отырған өзі екен. Бірақ ақ сүті ақталыпты, - десіп бір қойысатын жұрт* 'It was he, who brought up the grandson. People said that his work came true' (M.Auezov) (Кеңесбаев, 2007).

Жаны сүт татып тұр 'soul has taste of milk' is used to express carelessness, kindness, childish, pure, innocent person *(mostly used as a joke, has meaning of 'vain, conceited')*.

Сүт кенже 'milk - the youngest' means the youngest child in family. *Қарт әжесі Өтешті «сүт кенжем» деп емшегінен ерте айырып, өзінің бауырына басып өсіріп еді* 'The old grandmother, having weaned Utesh early away from a breast, whom named "favourite", brought him up herself' (A.Nurpeisova) (Кеңесбаев, 2007).

Сүттей жарық 'light like milk' means as bright as day. *Сүттей жарық, айлы түн. Таң әлі жоқ. Бірақ жоқ екенін білсе де, Абай әлде қандай өзгеше «таңды» сезеді* 'Moonlight night, asbrightasday. The dawn isn't present still. But knowing that there is no dawn, Abai feels another "dawn"'(M.Auezov) (Кеңесбаев, 2007).

Ернінен енесінің емшек сүті кетпеген 'mother's milk is not still dried from the lips' means very young, a child. This phraseological unit is used to express, that person does not reached manhood. It is used to blame someone.*Емшек сүті кетпеген ернінен Екі інімді мен қайтіп асырармын* 'Mother'sbreastsoffmylips are not wiped away, but I will take care of two young brothers' (K.Zhumaliyev). All these phraseological units and also ***Ананың сүтімен еніп, сүйекке сіңген әдет*** (to absorb tradition with mother's milk) were described using positive definitions. It shows us, that these phraseological units are in constant usage even nowadays. (Кеңесбаев, 2007).

However, such phraseological units as ***Сүт үстінде қаймақ болды*** 'there is sour cream on a surface of milk', which means to grow up without any difficulties. *Көз салып біздің күйге бойлаймысың? Әлі де тірімін деп ойлаймысың? Ерке қыз, сүт үстінде қаймақ болған, Үйдегі желігіңді қоймаймысың* 'Couldn't you really understand our situation? Or you think, that you are still alive? Spoiled daughter, as the princess on a pea, cannot you leaveyour family naughtiness' (Кеңесбаев, 2007).

Ананың ақ сүті ұрсын! 'Let mother's white milk hit you!' is used as curse. *Шіркін, сұлу дүниені, Талқандатсақ тас жүрекке, Жан күйдіріп іштің шері, Ана сүтін сауар көкке*'Damn beautiful, wonderful life, breaking my heart stone, burning my soul pain, damn it all!' (D.Abilev). *Сүлеймен жұлқынып кетуге айналды. Ақ сүтімді көкке сауам! Әйел омырауын жыртып жіберді* 'Suleimen overreacted. Damn it all, torn wife's dress' (S.Yerubayev). *Қалқам, Зейнешжан, тілімді алмасаң, емшегімді көкке сауам, қолымды теріс жайып, қарғыс берем*'Dear Zeineshzhan, if you do not obey me, I will damn you' (B.Mailin) (Кеңесбаев, 2007).

Сүттей ұйыды 'turn sour like milk' means to take on trust, to take at its face value, to believe. *Міне, бұлардың қайсысына болса да Нұрым сүттей ұйып: «Пәле, пәле, тіпті жөні бар, аруақ асыға ма, саса ма? Біз ұмытсақ та, жарықтықтар жебеп, желеп жүреді ғой» деп арқасы шымырлап кететін* 'Nurym got used to each of them and at one thought of, whether spirit hurries, whether in confusion, it threw him into a shiver. Even if we forget, they will support him' (S.Toraigyrov). None of respondents gave correct definition; due to it they had wrong association,

while perceiving this phraseological unit. It shows us, that all these phraseological units are not so popular among young generation. It gives us possibility to think that these phraseological units become archaic phrases. (Кеңесбаев, 2007).

Conclusions

The Kazakhs were nomads. Domestic cattle were one of the most significant parts of their life. It was impossible to imagine their existing without domestic animals. Dairy products were one of the important components of the Kazakhs feeding. The Kazakhs usually used milk in final substance. Thus, there were facts of usage of unpasteurized milk. Kazakhs use nowadays milk of cows, sheep, goats, female horses. The most widespread - cow milk.

Meaning of the word 'milk' according to T.F. Yefremova:
1. The white nutritious liquid gave out by breast glands of women and females of mammals after delivery for feeding of babies, cubs.
2. Liquid received from cows, goats and some other animals, used in food.
3. Whitish liquid substance in a root, a stalk, leaves of some plants. //Whitish liquid extracted from some fruits, seeds of plants.
4. Whitish liquid of any substances, reminding such liquid.

There are two types of meaning used in phraseological units. The first is mother's milk; the second is milk, produced by cows. The first type of meaning used to code tradition, customs, passed from generation to generation, the way of teaching, tutoring children. Here we see significance of mother in upbringing. In addition, we can say, that all respondents identified correctly both the most of phraseological units with component "mother's milk" and with such meaning. It give us opportunity to consider, that all young people continue to save tradition and customs even nowadays. Cow milk is used to express quality or characteristics. There is negative colouring in these phraseological units. Many respondents cannot give correct definitions to them. Therefore, we can say, that these phraseological units are not topical nowadays. They bring difficulties to young generation to perceive them instantly. They have to use only explanatory dictionaries to learn the meaning of these metaphorical phrases.

Thus, having analyzed phraseological units with 'milk' component, it is possible to conclude that among them there are stereotypes which measure activity, behavior of the Kazakh ethnos and symbols, which form certain images and give motivation.

Phraseological units with 'milk' component represent congestion of cultural information, reaching depth of spirit of the Kazakh people and world culture.

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Job stress, coping strategies and professional deformation of Human resource managers

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Abstract: Human resource manager role is related with human resource management and has high sense of responsibility, therefore it is important to assess the degree that personal managers suffer from overload, emotional burnout, professional deformation. Overload result - stress affects work productivity, quality, work error and trauma amount. The aim of the research is to determine the level of the job stress, coping strategies and professional deformation features of HR managers. Three questionnaires were used in the research: Professional Life Stress Scale, Strategic Approach to Coping Scale, questionnaire about work stress and professional deformation and correlation analysis. HR managers are suffering from mid-level of stress, and research shows that the main difficulties that HR managers are facing during their professional activity are workload and inadequate deadlines. HR managers are using the following coping strategies - „Assertive Action" and „ Social Joining", it means that HR managers can defend their rights without oppression of others, and stress situations are managed by joining together with others to deal with the situation together. There is a possibility that many of HR managers have professional deformation features. The Research findings can be used for ongoing studies on job stress and professional deformation in psychology and to reduce job stress and professional deformation amongst HR managers.

Keywords: job stress, coping strategies and professional deformation, HR managers.

Introduction

On daily basis, the position of a personnel manager includes interpersonal communication as well as management of human resources (resource planning, assessment, planning of training, talent management, career planning, change management, registration of work time, dealing with problems of the employees in various problem situations, etc.). The personnel manager has a high degree of responsibility because they act as intermediaries between the business interests of the company and the interests and needs of the company employees. This, in its turn, places this profession among the high-risk profession with regard to occupational stress and professional deformation. Much is being talked about occupational stress in employees, but less about personnel managers, and, for this reason, the authors of the paper wish to analyse this problem with regard to personnel managers.

The aim of the article to find out the level of occupational stress, stress management strategies and signs of professional deformation in personnel managers.

In literature occupational stress is usually defined as the employee's feelings with regard to their job – difficulties at work, concern, anxiety, disappointment, emotional depletion and tension (Armstrong, Griffin, 2004, Wickramasinghe, 2010). Occupational stress means changes in an individual which occur as result of external forces – subjective event experience (Le Fevre, Matheny, Kolt, 2003). Stress, which is a result of excess mental load, influences work productivity, quality, number of errors admitted at work, and the number of on-job injuries. Stress is an unavoidable component of life, but it may lead to frustration, depression, and tension (Kofoworola, Alayode, 2012). Stress in employees increases if the requirements at work are not approved by managers and colleagues of the respective level (Wickramasinghe, 2010).

Stress management strategies. Coping is defined as a process for overcoming external and/or internal requirements which are usually rated as reducing the personality resources (Bartlett, 1998). According to R. S. Lazarus, there are several types of managing stress by humans (Lazarus, 2000). The psychological stress model of Lazarus (2000) relates to overcoming stress which results in the use of a

certain strategy of managing stress. The stress model of S.Hobfoll, in its turn, represents a multiple-axle model of management. The axes distinguish between action-oriented stress management and the relation of the individual with other people. The active – passive dimension includes self-reliance or exercising control over others.

The axis of social dimension implies that the process of stress management cannot do without the help of social interaction. Prosocial stress management includes adaptive acts whose purpose is caring about others. Antisocial stress management includes activities which deliberately harm people around or reflect general indifference towards harm done to others. Axis: directness – indirectness, indirectness more relates to active social stress management, which means that priority is given to maintaining harmony rather than protection of own needs (Hobfoll, 1998).

Professional deformation. Professional deformation of a personality means changes in the personality traits which occur during performance of professional duties and manifest in professional jargon, manner of behaviour and the physical image (Еникеев, 2010). The professional activities and individual properties change the level of manifestation of professionally significant properties, and this has negative impacts on the quality of the activity. The specifics of the professional occupation, in its turn, may, under certain conditions, cause negative impacts on the psychological structure of the personality by deforming it. There are own stressors and traumatic factors in every profession, professional deformation has the highest impacts on the personality in professions in which the job is related to working with people – personnel managers, medical personnel, pedagogues, psychologists, social workers etc. (Зеер, 1997).

Methodology

The following methods were used within this study to research the problem:

1) Professional Life Stress Scale by Fontana (Fontana, 1989);
2) Stress Strategic Approach to Coping Scale by Hobfoll (Hobfoll,1998);
3) Survey Among Personnel Managers on Occupational Stress and Professional Deformation
4) Correlation analysis.

The following questions were posed in the study:

1) What are occupational stress levels in personnel managers?
2) What stress management strategies are pursued by personnel managers?
3) Can signs of professional deformation be seen in the work of personnel managers?

In order to assure a better understanding of the problem, the secondary data on personnel managers and personnel specialists in Latvia were viewed in the first place. According to the data provided by the Central Statistics Authority, on 1 March 2011, there were 3,866 employees (3,263 females and 603 males) among the employed inhabitants in Latvia whose job was related to human resources.

Table 1

Employed Inhabitants of Latvia by Profession/Position in Main Job on 1 March 2011 (Central Statistics Authority Data, Source: www.csb.gov.lv) (Centrālās Statistikas..., 2013)

Code in the Classifier of Professions	Name of the Position	Total	Females	Males
1212	Personnel managers	1,057	825	232
2423	Personnel and career, quality management system senior specialists	2,374	2,104	270
2424	Training and personnel development senior specialists	311	224	87
4416	Personnel record keeping employees	124	110	14
	Grand total	**3,866**	**3,263**	**603**

As can be seen in Table 1, there are predominantly women in professions related to human resource management in Latvia. As on 1 March 2011, there were 1,057 people employed under position name „personnel manager" in total in Latvia. Of these, 78% were females and 22% were males. The largest group among those involved in management of human resources are senior personnel and career, quality management system specialists. 71 respondents (personnel managers) participated in the empirical study conducted by the authors: 68 females (96%) and 3 males (4%). This study confirms the fact that more women work in the sector of human resource management in Latvia, 65% of the respondents currently study personnel management.

Results and discussion

In order to answer research questions, work authors gathered primary data on personal manager work stress, used stress coping strategies, professional deformation by conducting empirical research. By analyzing the primary data and respondent answers, the following results were achieved.

Professional Life Stress Scale by Fontana (1989).The following results were obtained from evaluation of the responses given by the respondents and calculation of the number of points for each respondent: The responses provided by 58% of the respondents suggest that the level of occupational stress among personnel managers is low, and the job-related stress has no negative impacts on the physical or psychological condition of the respondent. 41% of the respondents have a medium occupational stress level, which suggests that job-related stress may have negative impacts on the physical and psychological condition of the individual. Referring to theory, occupational stress most often occurs in employees whose job involves human resources services. (Schaufeli, Enzmann, 1998).

Stress Strategic Approach to Coping Scale by Hobfoll (1998). The following results were obtained by summarising the responses given by the respondents on each of the subscales: personnel managers most frequently use such stress management methods as Safe, insisting (assertive) behaviour - 38% of the total number of respondents and Social consolidation - 17% of the total number of respondents, which means that personnel managers are able to defend their rights without using aggression and suppressing the rights of others. This confirms that personnel managers opt for a stress management strategy that is adequate to their position. Stress management strategy „social consolidation" indicates that, when dealing with situations and carrying decisions, personnel managers are willing to find out other opinions. This strategy suggests that personnel managers need opportunities for sharing opinions and experiences with others. Personnel managers most rarely opt for the stress management strategy of „avoiding", and this might suggest that behaviour targeted at avoiding a problem is not typical in personnel managers. According to Hobfoll, use of this strategy allows the individual to reduce their psychoemotional tension without changing the stress situation itself. Personnel managers do not use antisocial behaviour in their professional activity.

Correlation analysis. The Pearson correlation ratio was used to find out the correlations between the results obtained during the surveys and the age and years of service of the respondents. The following results were obtained: There is no statistically significant link between the age of the respondents and the level of stress ($r = .22$, $p > .005$), between the age and professional deformation ($r = .11$, $p > .005$), between years of service and professional deformation ($r = .31$, $p > .005$).

There is statistically significant, medium tight correlation between the age of the respondents and the years of service in the position of a personnel manager ($r = .52$, $p < .005$), which suggests that respondents choose long-term performance in their current profession.

Surveys into professional deformation and occupational stress. The respondents' (18%) number of points was 3 (out of 5), and this suggests that professional deformation may develop, 11% of the respondents have professional deformation, which suggests that the respondents have inadequately high assessments of their professional knowledge and skills, do not question their decisions, and consider themselves to be irreplaceable employees.

The largest percentage (69%) of personnel managers have specified that the biggest challenge at work they have encountered has been workload, 44% of the respondents have specified work performance timelines, and 34% have specified unclear job assignments and requirements. According to Dyer and

Quine (Dyer, Quine, 1998), the number of worked hours and the obligations are potential occupational stress factors. Employees having excessively high loads and too many obligations find it more difficult to manage them (Schaufeli, Enzmann, 1998; Teoh, Yau, Chong, 2011). 83% of the respondents acknowledge that they feel emotionally distressed if they have to carry a decision regarding a company employee. Thus, there is a possibility that the carrying of such decisions may result in causes of occupational stress (Teoh, Yau, Chong, 2011). The decisions carried by them and the actions taken are believed to be correct and to be the only correct action by 30% of the respondents, 54% of the respondents have indicated that they tend to evaluate their relatives or acquaintances using their professional skills and competences. According to Trunov (Трунов, 2004), this might be suggestive of professional deformation as consequences of being active in the profession for many years and deformations occurring in the process of specialisation.

Conclusion

1. Personnel managers have medium and low occupational stress levels, which suggests that job-related stress may have negative impacts on the physical and psychological condition of the individuals.
2. Most frequently, personnel managers use such stress management strategies as Safe, insisting (assertive) behaviour and Social consolidation. This means that personnel managers are able to defend their rights without using aggression or suppressing the rights of others.
3. Personnel managers most rarely opt for the stress management strategy of „avoiding". Thus, behaviour targeted at avoiding a problem is not typical in personnel managers.
4. Personnel managers (11%) have professional deformation, which means that the respondents have inadequately high levels of assessment of their professional knowledge and skills, do not question their decisions, and believe themselves to be irreplaceable employees.
5. There is statistically significant, medium tight correlation between the age of the respondents and the years of service in the position of a personnel manager ($r = .52$, $p < .05$), which suggests that respondents choose long-term performance in their current profession.
6. The most significant stressors personnel managers have had to encounter include workload, work performance timelines, unclear job assignments and requirements.
7. Personnel managers (83%) feel emotionally distressed if they have to carry a decision regarding a company employee. Thus, there is a possibility that the carrying of such decisions may result in causes of occupational stress.

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Students' spiritual values in the environment of non-formal education

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Abstract: Material values have a great influence on modern society, although sustainable society can exist only if it has balanced value system. Future society will consist of nowadays students therefore the aim of the research is analyzed and evaluated students' spiritual values in the environment of non-formal education. Respondents of the research were 4 students and 4 teachers. Research methods were semi-structured interviews and content analysis. In the result of the research was found students' understanding of spiritual values providing a platform for future researches of interaction between students and spiritual values in the daily life.

Keywords: environment of non-formal education, sustainable society, value system.

Introduction

Material values have great influence on modern society although sustainable society can exist only if it is aware of the importance of spiritual values. Future society will consist of nowadays students therefore solutions must be found to help them order their value system. In the environment of non-formal education (for example in the environment of literary musical events) students and teachers can interact as equals – it provides positive conditions to reveal spiritual values.

Latvian teacher and first collector and arranger of song melodies Jānis Cimze (1814-1881) believed that *in the education of the soul special role is to songs an music therefore teacher must be musically educated* (Rudzītis, Aizsila, 2001, 13). It was believed that sophisticated person must be competent in the arts.

As E. Sparanger pointed in the analysis of values must be considered both object and subject of the value – what is valuable and to whom (Sparanger, 1928/1930). Sparanger developed universal classification of the values arranging them in six types where every type of values complied with certain cultural area.

The outstanding teacher author of the "General Pedagogy" (in original language – Latvian „Vispārīgā paidagōģija") J. A. Students explains that values are not changing but opinion of them is. Values and ethical standards stay as they were before but changes living conditions, historical course (Students, 1933/1998). Consequently spiritual values exist in every time changes only ability to see them.

G. Allport (Allport, 2002) acknowledges that values are prior and special. They have an energizing power to encourage for action. Values of the person are interconnected and ranked in levels by the importance. Structure of the hierarchy characterizes disposition of the personality, direction of the interests, dominating tendency of motivation. Subjective values are crucial in every process of personality's motivation because the interests and the values determines lifestyle of the person (Karpova, 1994).

In previous researches spiritual values are studied from the psychological point of view partly showing importance in the pedagogy. Authors of the research studies spiritual values in the environment of non-formal education - in literary musical events analysing and evaluating what kind of values students possess. The beginning of the research for the authors was collaborating when Elīna Skutele wrote her master thesis in the leading of Anita Aizsila. Research is still continuing.

The aim of the research was analysed and evaluated students' spiritual values in the environment of non-formal education.

Methodology

The methodological basis of the research is in pedagogically philosophical paradigm according to the basic idea of the research. The structure of the research unites the practical and the action approach and the analytical approach during the interviews and pedagogical observation.

As the most important concepts in this research are considered concepts of pedagogy (Karpova, 1994; Rudzītis, Aizsila, 2001; Students, 1933/1998) and spiritual values (Allport, 2002; Sparanger, 1928/1930).

Research took place in the Kalnciems Secondary School (school in rural area surrounded by the forest, an old building with historical and cultural value). Respondents were students from 9th till 12th class and teachers. Literally musical events are not compulsory – there comes only those who want to.

Methods used in the research are: analysis and evaluation of theoretical sources, empirical data acquisition methods. The interviews were made as it is shown in the scheme in the Figure 1.

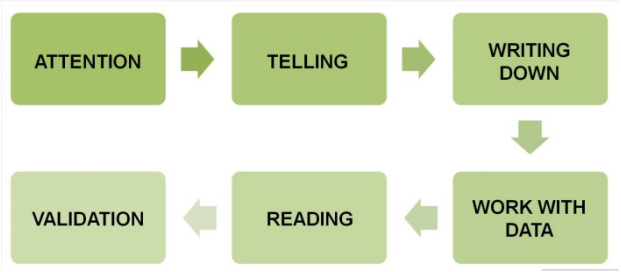

Figure 1. Phases of qualitative research
(after Riessman, 1993, 10, Kroplijs, Raščevska, 2002/2004, 59)

Phases of qualitative research:

- attention – students take part in literally musical events and evaluate what they do there;
- telling and writing down – semi-structured interviews;
- work with data – content analysis;
- reading – publication of the research results;
- validation – research is validated in the process of reviewing.

Interviews with all students (participants of the literary musical events) took place outside the classrooms in relaxed atmosphere and pleasant weather. All respondents agreed taping the conversation and using data in the research. The interviews were held as conversations in equal positions, encouraging respondents to ask questions as well when it was important to them.

Interviews were semi-structured in order to make conversations as natural as possible. Answers of the respondents in relaxed atmosphere would rather be a valuable research material than answers received in laboratory-like conditions.

In the beginning of the conversation respondents were informed that questions will be asked for the research of the literary musical events. There was not mentioned the term “spiritual values” in order not to cause an effect on the responses. There were 4 respondents from the group of students and 4 respondents from the group of teachers. In the interviews were 5 key questions and additional questions if necessary. Conversations were taped with the permission of respondents in order to carry out transcription and content analysis of the text.

It was easier to create relaxed atmosphere in the interviews of the students. After the first question they perceived conversation style and answered freely. It was more difficult to receive relaxed answers from the teachers especially after the agreement to tape the conversations. Although all respondents were informed that data will be anonymous respondents from the group of teachers reacted to questions as a test not data extraction form. It made more difficult to work with the data with content analysis method where important are accidentally said words and respondents’ style of speaking.

During the transcription every respondent's expression style was respected. The pauses, tone changes and accidentally said words were marked. Name of each respondent was coded and the real name was kept apart from the data obtained. Transcriptions occurred the same day interviews were held in order to gain qualitative data (taking into account the human factor – doing transcription the same day researcher can remember more details from the original conversation). In addition to transcription of the talked words there was a detailed description of the environment, mood of both researcher and respondent and relationship between researcher and respondent.

Through the content analysis environmental conditions (external – weather conditions, social – mutual relationship, psychological – mood of the researcher and respondent) and data received during the transcription (both text and notes on conversation) were taken into consideration.

During the content analysis different respondent answers on one question were compared and correlations were searched in one respondent's answers on all questions. Key words that represent the answer best were searched. Were searched synonyms and adjectives respondents used to emphasize importance of their answers and accidentally said words that point to initial response that respondent changes while talking.

Obtained data is sorted in a table putting together shortened answers of the respondents to the same question. Below the data is the analysis. Notes and comments on the conversation (pauses, laughter etc.) are written in italic. Words and phrases that distinctly characterize the answer are underlined. Use of jargon is given in quotation marks.

Data with the answers of students (Table 1) are given in original language – in Latvian with short review translation. The analysis is in English.

Respondents **D**, **I** and **K** are female, but respondent **M** is male. The order of the answers complies with the order of interviews (namely: 1. – **D**, 2. – **I**, 3. – **M**, 4. – **K**). It is possible to see differences in the last interview because the last respondent heard previous respondent's answers. All interviews – conversations took place outdoors in warm and pleasant weather conditions after the lessons at the end of the day.

Table 2

How do you understand the words "spiritual values"?

Answers of students			
D	**I**	**M**	**K**
Spiritual values are that what is closest, most important in life to a person. For some it's family, for some maybe art. Depends from the person.	Of course the mind. I choose my friends by their values – what is important for them, how one see the life. I don't choose friends because they have a lot of money or "cool" car, but because of that how one looks at the life, what is important for one.	Spiritual values? *(long pause, laughter)* Wait! Say something for example. *(interviewer refuses)* It could be patience, wisdom that you have. Your thoughts. I don't know.	Spiritual values are ones personality, knowledge, wisdom *(pause).* Spiritual values are ability to communicate with others? Or what we can percept and do. Communication.
Analysis			
First two respondents (**D** and **I**) choose the word "important". Respondent **I** continue that spiritual values show how person looks at the life. Respondent **D** mentions two values: „family" and „art" to some extent opposing them. Second two respondents (**M** and **K**) focus on values within the person: patience, wisdom. Respondent **K** refers to communication with other people and personality as values.			

Data with the answers of teachers (Table 2) are given in original language – in Latvian with short review translation. The analysis is in English.

All respondents work with children and youth. All of them are female. Respondent **R** is a teacher, representative of formal education. Respondent **A** is a teacher who works in a non-formal education too. Respondent **S** is a representative of non-formal education who works in international level. Respondent **P** works in cultural sphere and has an education of teacher but does not work in formal education institution.

The order of the answers complies with the order of interviews (namely: 1. – **R**, 2. – **A**, 3. – **S**, 4. – **P**). All respondents were interviewed at the end of the work day in their offices – personally closest room in their place of work.

Table 2

Do you see a connection between spiritual values and environment of literary-musical events?

Answers of teachers			
R (formal)	**A** (formal / non-formal)	**S** (non-formal)	**P** (culture)
Spiritual values are already in the scenario. It is not like in the everyday school life. It is a free environment where you can creatively express yourself. The most important thing is a free environment where one can talk freely, surely talk. There are no frames. At first they are afraid, but then one start to speak, then other. Then they open themselves and freely express their thoughts and feelings.	I think there is a connection. It depends how openly one speaks. The environment motivates to speak openly and talk about all thoughts so these events reveal spiritual values. Maybe events help the students to compare things, to think what are mine and what are thoughts of the others.	Spiritual values are an inner resource and literary musical events are impulses that help to grow the values. You never know when student will open up and ones value will grow bigger.	How it could not be? How can you make something with literature, poetry and music without the spiritual values? All of them are spiritual values. Person lives not only from bread, but from that what you can perceive from the world, from someone other. In my opinion a tree is a spiritual value too. It all comes together and you can't divide it into pieces.

Analysis

Respondents by consensus admit the connection between spiritual values and environment of literary musical events. There is a risk that form of the question would promote a positive answer but reasoned answers lead to think that connection really exists (reasons are underlined in the text).

Respondent **A** emphasizes the free environment where students can speak surely. In different words she repeatedly emphasizes the positive influence of free environment. It indicates that it is believable that respondent would like to try a new experience in different kind of education she has used to.

Respondent **B** highlights the freedom of possibility express yourself. She points out on possibility that some of the students who are not ready to open themselves it wouldn't give as much as to others.

Respondent **C** expands the thought of spiritual values as inner resource that can be grown and developed in leading of a teacher.

Respondent **D** rhetorically asks how there could be no connection if there are so many spiritual values from different kind of arts. Respondent emphasizes that person need something more than satisfaction of physiological needs and spiritual values are more.

Results and discussion

Comparing the data from interviews it is visible that students' responses are much freer in the expression style answering the questions. In the answers of teachers is visible a will to answer as precise and detailed as possible trying to give a new information to interviewer. It points to a professional peculiarity to be ready to answer to unexpected questions giving the most useful answer.

Mentioned peculiarity in the form of the answers affects the content of the answer as well. Answers of the students are more general including family, friends, arts, personal characteristics and social interaction. Answers of the teachers are focused on the research emphasizing the connection between spiritual values and literary-musical events while students are thinking about themselves and their friends and generalize their thoughts.

Analysis of one question gives the view of all research. In the other questions were similar correlations. Answers of the teachers were directed somewhere while answers of the students were directly to the question without trying to say something else.

In the future researches it would be interesting to expand the studies of this particular peculiarity comparing the principle of generating the answers for student and grownup (teacher or representatives of other professions).

In the research of spiritual values semi-structured interview gives a rich data material to start with. After selection of important data for the research and data analysis in the answers of students the wide range of mentioned spiritual values are visible. In some cases spiritual values are contrasted with the material values. In the answers of teachers there are less personal opinions but looking at issue from the side position putting forward the students and their values.

In the future researches it is important to study the change of understanding what spiritual values are in one generation and between different generations comparing them. Results of the research shows that respondents are aware of spiritual values but their understanding of them may change with time. Furthermore in future researches must be studied how students recognize the spiritual values in daily life – if they see their mentioned values in the real life.

And the most important question that can serve as main idea for the future researches – which values are most important in our society and to what extend spiritual values are included. Finding an answer to this question will also give the understanding of development of the society and level of the cultural advancement.

Conclusions

Spiritual values are important but difficultly measurable. For research useful can be text analysing methods as content analysis.

The results of the research provide a basis to further research giving a possibility to creators of future society – students – to analyse their and the society's value system and order it giving an important place to spiritual values.

- Free answers of respondents indicate the trust to interviewer and compliance of the method conducting a research where respondents are represented by students.
- Different answers of two groups of the respondents – students and teachers – show the differences between generations, influence of the profession (teachers' tendency to explain) and suggests a new direction of the research emphasizing the differences between generations.
- Data obtained in the research shows that students recognize wide range of the spiritual values so theoretically their value system is balanced accepting the spiritual values. But it could indicate that students give the answer they are waited to or they know it theoretically but are not able to implement in the life. The conclusions lead to plan further research looking for an option to measure interaction between students and spiritual values in the daily life.

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Didactics of engineering sciences, usage of IT

Advances of eBig3 course implementation and a vision on the ePortfolio system possible integration

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Abstract: The paper presents advances in implementation of so-called eBig3 approach in open education. This approach could be imagined as a synergy of three key technology-enhanced learning elements: e-learning, mobile learning and TV-learning. Authors briefly describe this innovative learning method, emphasize the sequence of learners learning activities, and introduce first results, success factors and food for thought. The main aim of this project is the offering of open courses for the wide range of public, making them available by different means of technology, as well promoting of lifelong learning in the whole country and neighbouring states. The article also calls to think over possible ways to make presented system more effective and powerful. One of such extra instruments might be found in adding of reflection stimulating ePortfolio system which would lead education into really multidimensional direction to meet the needs and expectations of the target group in the best way.

Keywords: eBig3, ePortfolio, information system, competences, lifelong learning.

Introduction

Lifelong learning challenges require new approaches to enhance acquiring, developing and regaining necessary competences for sustained involvement in knowledge society and world economy. Countries governments, municipalities and educational organisations are urged to "provide lifelong learning opportunities as close to learners as possible, in their own communities and supported through ICT-based facilities wherever appropriate" (Commission of the European Communities, 2000). Labour market demands elasticity and ability to reform in a case of sudden change, such as changing of job positions and responsibilities, new career opportunities and so on.

This leads also to the shifting of existing educational paradigms. Educators are asked to reload their thinking and find new ways to make learning open, mobile, effective and sustainable. New European Commission initiative „Open Education 2030" calls for these prospective visions and the Open Educational Resources (OER), as the one of key components, are proposed. OER have two main development issues to be solved: the quality, i.e. personalization of the courses and learners' collaboration, on the one hand, and the efficiency, i.e. learning costs to students, which ought to be equal to nil, and an access, which ought to be open for wide public (Redecker, Castano, 2013). UNESCO in its 2012 Paris OER Declaration encourages educators to find new solutions and technologies, create user-friendly tools and systems which would help in OER development, placement and retrievement (UNESCO, 2012).

Fast growing technologies, new information systems and tools bring us new possibilities to implement educational policy documents. Adoption of existing learning technologies and introducing new methods can make educational process more effective (Reilly, 2013). Besides, we ought to keep in mind an issue of how to make all learning process more convenient and useful for the learners – starting from course joining procedures, continuing by learning activities, and ending with issuing of the course completion certificate.

The synergy of e-, t- and m- learning, incorporated into common information system, as well corresponding educational methods, may resolve the problem of learners' attraction to the courses,

increase efficiency, and promote lifelong learning. Next chapters of this paper provide first observations and analysis of new system implementation.

Methodology

Introduced eBig3 approach is based on an idea that three key components of technology-enhanced learning ought to be integrated into a common system. It represents the synergy of e-learning including broad use of electronic media, Internet, information and communication technologies, etc. (Wikipedia, 2013), t-learning including the use of telecast and TV watching, and m-learning including the use of mobile devices. The eBig3 system's implementation includes several steps as follows (Fig.1):

- the eBig3 learning process starts with the broadcasting of t-learning objects in a form of videos on Latvian National TV channel (LTV7);
- promo subtitles on the screen invites video viewer to learn more about particular theme and join the course by sending a text message to the eBig3 system;
- if the viewer is interested in the material, he/she sends joining message to the system;
- shortly, the eBig3 system generates a reply message with joining instructions, providing to the student unique username and password;
- the learner enters the course, learns provided e-learning objects, takes the tests and exercises, accomplishes homework assignments;
- the system offers a possibility to acquire learning objects both through computers and mobile devices;
- The eBig3 system sends various types of text messages to learner on the user's mobile phone to encourage the learner, remind about course activities, etc.;
- face-to-face meetings and seminars are organized at the initial and final stages of the course, as well – during the course; they are provided in three cities of the country with the aim to assist learners and explain them the most sophisticated issues;
- course certificate, as the award for the assiduity and advancement, is issued by Distance Education Study Centre, Riga Technical University if all course activities, i.e. tests and final assignments are completed. Learner's participation in the final seminar and his/her course-work final oral presentation is sine qua non.

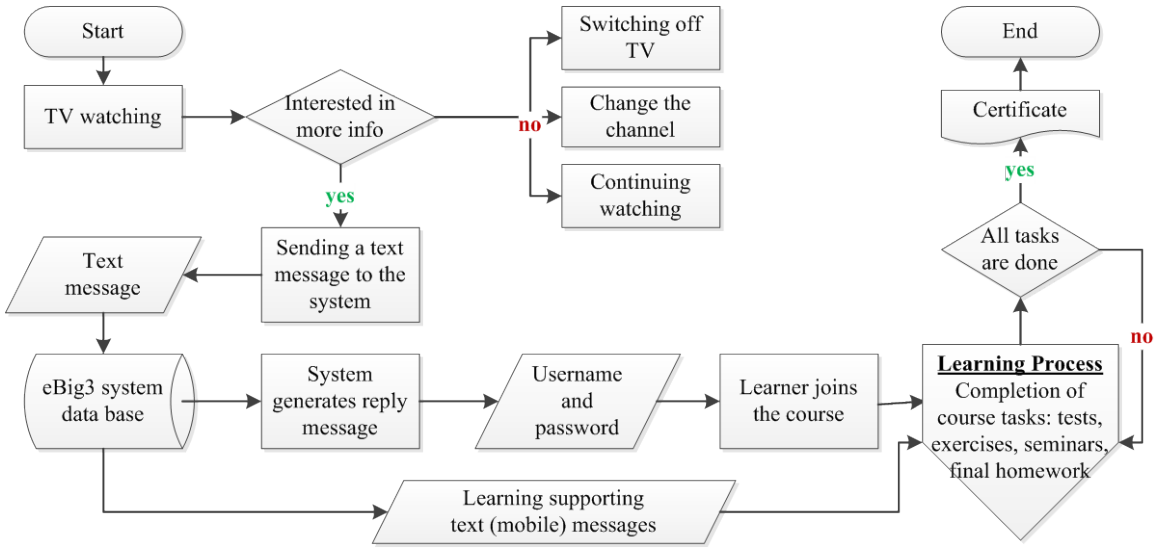

Figure 2. eBig3 system model

The system provides wide range of study support by means of onsite workshops, face-to-face meetings and consulting, where our intent is to give their participants as much useful information as we are able to do so in the most convenient and understandable way. Motivating, encouraging and reminding text messaging instrument is integrated into the eBig3 system which allows maintaining students' interest in course themes and actions. Besides, communication tools are provided to make easier study group members communication within the course, for instance, e-mailing, discussion and topicality forums.

For an additional, questionnaire forms are developed to find out learners attitudes and thoughts about their learning experience, satisfaction level with eBig3 learning approach, and eBig3 system components' impact on study process and results. System users' activities are measured by the number of their log-files, mouse clicks, acquired themes, accomplished tasks, exercises, tests and final course work, as well attended onsite workshops.

Results and discussion

The eBig3 course modules in Latvian and Lithuanian languages were published on the eBig3 study portal (http://ebig3.eu/v2/) in February, 2013 with first courses in Latvian: the course no.1 "Professional communication", no.3 "Business essentials" and no.5 "Information society and telework". Several other courses in both noted languages were offered in next months in March and April. Totally 20 courses in Latvian and Lithuanian were introduced by the end of May, 2013. All courses within the project were offered to everybody free of charge. This condition also applies on an issuance of the course certificate.

The telecast of eBig3 course themes on Latvian National Television was started in December, 2012, and consistently continued twice a month. During TV watching potential learners, interested in particular theme, were sending corresponding text messages to the system. After a while they received the course registration data and joining instructions on their mobile phones.

Figure 2. eBig3 learning portal

After that learners came to the eBig3 portal and started the studies by pushing the entering button (in Fig.2 – "*IEIET KURSĀ*") where afterwards system user's authentication and identification process was finalised. The eBig3 portal main page offers also to look at the full list of offered courses (in Fig.2 – "*KURSU SARAKSTS*"), application procedures for the courses (in Fig.2 – "*KĀ PIETEIKTIES EBIG3 KURSĀ?*"), frequently asked questions (in Fig.2 – "*BIEŽĀK UZDOTIE JAUTĀJUMI*"), information about the project and project partners (in Fig.2 – "*PAR PROJEKTU*" and "*PROJECT PARTNERS*"), as well contacts list (in Fig.2 – "*KONTAKTI*"). Introduction video is provided on the portal's main page. Course materials are available in m-learning form by integrating QR codes within course modules.

To examine an issue of the eBig3 system learners' engagement into learning process, students' course attendance data, by means of log-files, and their learning activities, by means of mouse clicks, were recorded and analysed. Table 1 shows learners activities in the first two of three opened courses starting from early February, 2013. The influence of just viewed videos, as well colleagues' and friends' suggestions has led to rather high learners activities within direct after-telecast period, advertising campaign and publicity measures in different organisations. In addition to all the foregoing, the text-messaging tool, embedded into the system, allowed retaining students' interest in their studied topics. This might be an essential issue which is also proved by system users' responses on the system's call for activities and students' answers in filled-in questionnaires.

Table 3

eBig3 users activities in courses No.1 and 3 till end of May, 2013

Week	Dates	Course No.1				Course No.3			
		Clicks	Previous cumulative clicks	New Users	Total Users	Clicks	Previous cumulative clicks	New Users	Total Users
1	9feb-15feb	214	214	29	29	1307	1307	30	30
2	16feb-22feb	104	318	24	53	1172	2479	34	64
3	23feb-1mar	145	463	16	69	841	3320	15	79
4	2mar-8mar	56	519	5	74	1480	4800	10	89
5	9mar-15mar	34	553	5	79	703	5503	6	95
6	16mar-22mar	159	712	13	92	1008	6511	10	105
7	23mar-29mar	149	861	2	94	317	6828	5	110
8	30mar-5apr	128	989	7	101	486	7314	6	116
9	6apr-12apr	588	1577	16	117	497	7811	17	133
10	13apr-19apr	826	2403	10	127	1221	9032	3	136
11	20apr-26apr	395	2798	5	132	881	9913	2	138
12	27apr-3mai	181	2979	3	135	66	9979	2	140
13	4mai-10mai	154	3133	3	138	62	10041	2	142
14	11mai-17mai	345	3478	3	141	288	10329	2	144
15	18mai-24mai	256	3734	9	150	424	10753	9	153
16	25mai-31mai	318	4052	3	153	144	10897	3	156
	Total	4052		153		10897		156	

Totally 153 students have joined the course no.1, 156 students – course no.3 and 54 students – course no.5. In later period courses learners' activities vary and the number of enlisted course participants differs from 39 to 116 depending on course attraction, telecast recurrence and other factors.

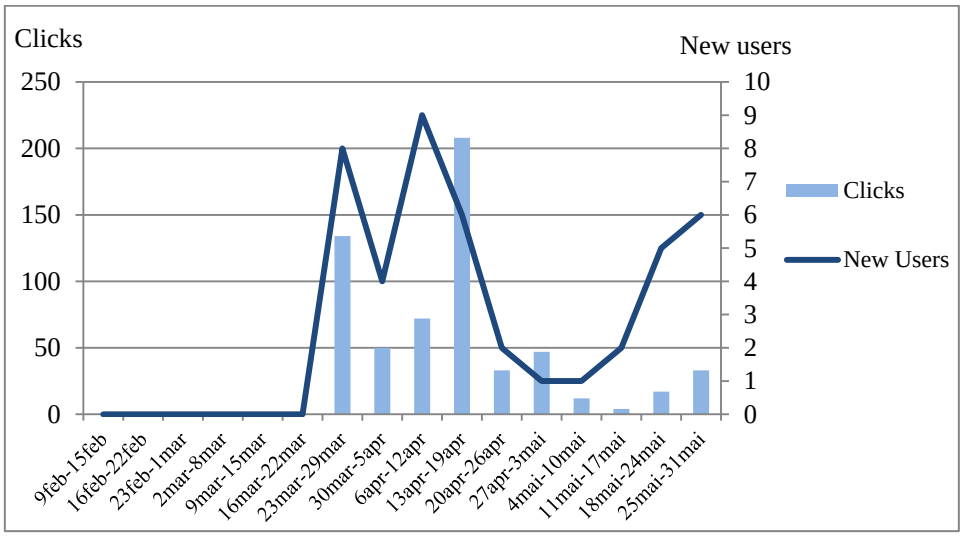

Figure 3. New users and their clicks per week in the 17th course

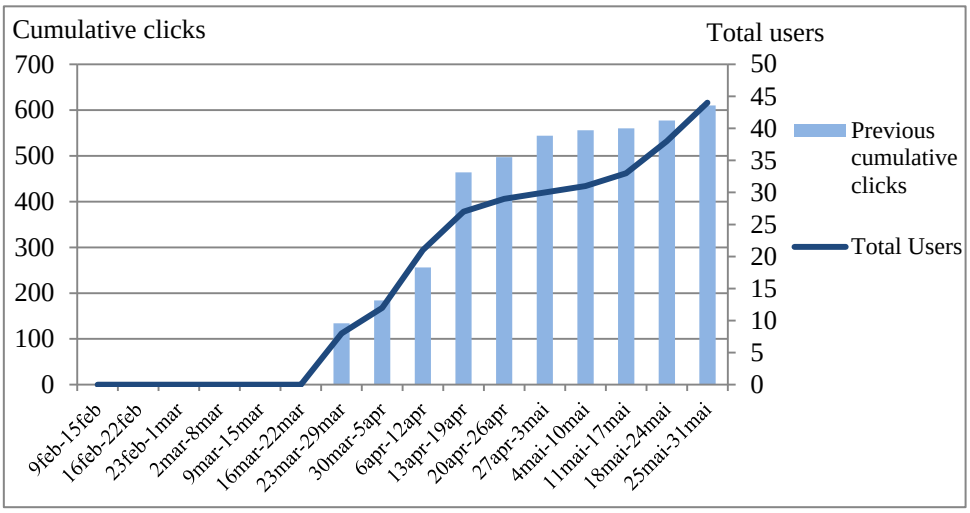

Figure 4. Cumulative clicks and total users of the 17th course

For example, in the 17th course "23 Things for Business Beginners" we can observe abovementioned tendency with new learners' involvement (Fig.3) and all students' engagement (Fig.4) during period of first ten weeks. We have direct positive correlations between mouse clicks and new users' enrolment, on the one hand, and previous cumulative mouse clicks and total number of engaged users, on the other hand. System's SMSs warned users about upcoming onsite workshops and activities, encouraged students to acquire new course themes. This stimulated the growth of the number of course participants. It might be said that system's text messaging tool has also had an important role in users' retention.

Regarding noted the 17th course it ought to be marked that this course was opened for learners at the end of March, 2013. Till the end of May, 2013, totally we have had 79 sistem registered users, including 16 project and teaching staff members – thus, in reality we have got 63 non-project involved members data. From them in the first five weeks period there were 26 registered users and in the 2nd one – 37 registered users, i.e. despite on some relative decrease we had about 42 per cent growth in the last observed period. These numbers are related to all registered participants, even those who never made any click within the system. They do not match with the numbers in Fig.3 and Fig.4 which, in their turn, display only those users who have made at least one click within the course. 18 registered applicants had never accessed the course activities. Therefore, only 45 participants data should be considered as valid ones. These characteristics push us to analise what ought to be done to stimulate learners activities and achieve better engaging results.

Till the end of May, 2013, there were nine onsite workshops / face-to-face seminars for courses in Latvian in three cities: Riga, Liepaja and Daugavpils, and three more – in June, 2013. Course participants' geographical belonging was rather wide, although, the majority of learners came from Riga, the capital of Latvian Republic. For instance, in the 17th course 70 registered users were Riga citizens, and only 9 others represented 6 other cities of Latvia.

During the first visiting session in Daugavpils University there was organised learners inquiry about their thoughts, feelings and satisfaction level of eBig3 learning experience. Fifteen respondents filled in their questionnaires. In some questionary items learners did not mark their choice. However, majority of them underlined (Fig.5) that they did like the synergy of technology enhanced learning and the way, in which they were able to join the course and were informed about course activities.

First months of eBig3 system implementation and preliminary data analysis shows excellent results. People are ready to adapt introduced new learning method in the mode of synergy of e-, t-, and m-learning. This approach ensures mobility and links up persons hobbies and leisure in own lounge with personal competence development. The system promotes lifelong learning and makes available it to anybody, anytime, anywhere.

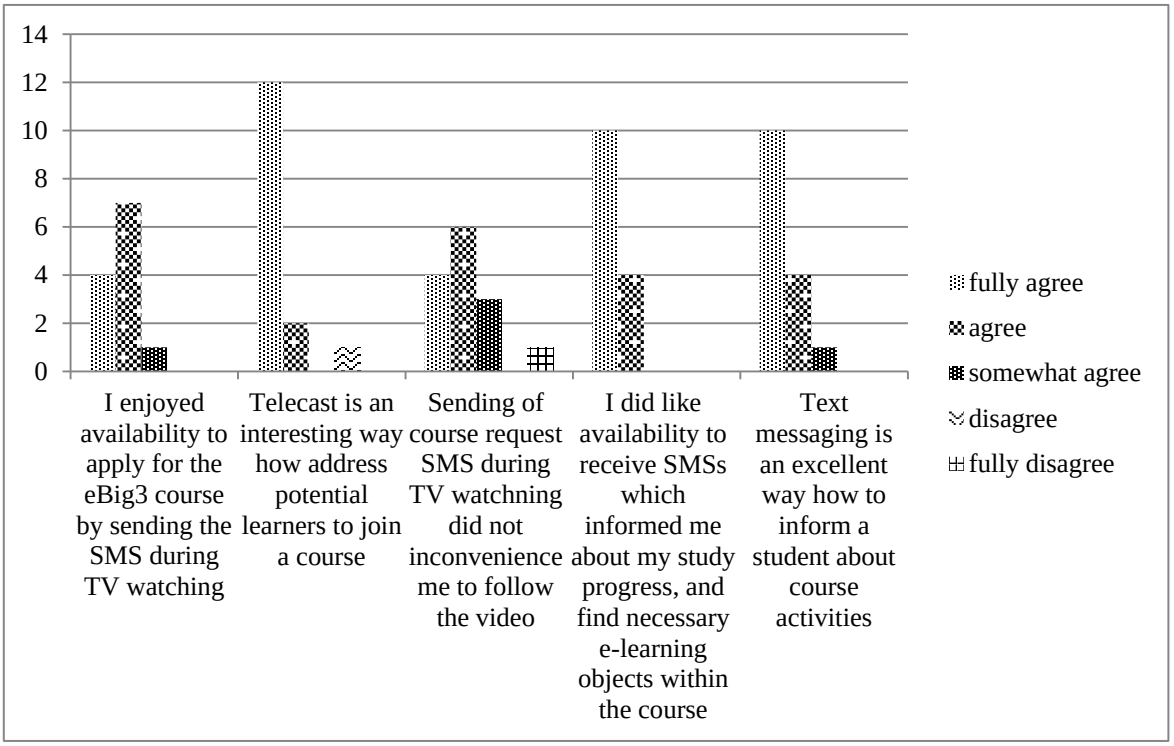

Figure 5. Users' eBig3 learning experience survey

At the same time, despite shown success, we ought to think about necessary improvements to make the system more effective. As a possible further solution the integration into eBig3 system of collaborative and reflection stimulating tools in the form of ePortfolios might be considered. Testing of experimental ePortfolio system in Living Lab conditions at the Riga Technical University in years 2011-2013 (Gorbunovs & Kapenieks, 2012, 2013) showed direct positive correlations between learners' activities within ePortfolio system and achieved competence levels. ePortfolio system group participants were asked to assess their group members accomplishments and make appropriate suggestions for improvement. Working in groups and gradually developing their course works, system users gained useful support and made better progress. Those learners, who took part in all group-working activities within ePortfolios, achieved 1,45 times better exam results rather than students who ignored collaborative ePortfolio system environment. The most active ePortfolio system users made 9,13 times more improvements in comparison with students who did not use the system. Figure 6 illustrates the impact of ePortfolio system on students' learning outcomes, their critical thinking and reflection abilities (Gorbunovs, Kapenieks & Kudina, 2013).

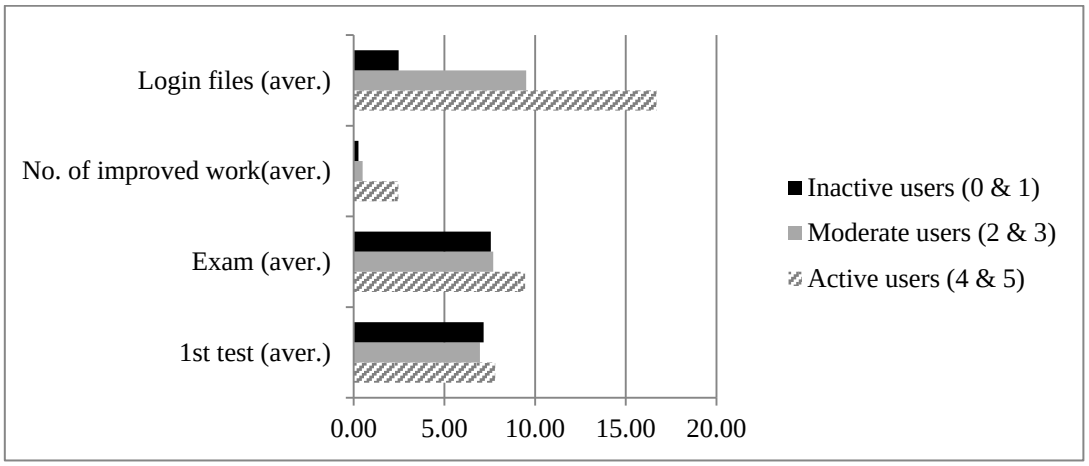

Figure 6. Users' achievements depending on their activities within ePortfolio system

Proposed learning method might be enriched by adding to the eBig3 system of extra potentialities what can render collaborative and assessment instruments in a form of ePortfolio system. In that case ePortfolio group formation issue will have to be solved – as we stand for broad range of potential learners living in different districts of the country, the group formation by territorial principle looks tempting one; on the other hand, we declare learning anywhere principle which could be implemented by active participation in group-working remotely, despite the distance between group members. Web 2.0 tools might help there.

Activities within ePortfolio system are inwrought also with action research. Learners within established groups are encouraged to work in close cooperation with other group members, "act creatively in in the face of practical and often pressing issues" (Reason, Bradbury, 2011). This means that engaging critical thinking and reflection stimulating instruments further might improve overall eBig3 system's efficiency.

Conclusions

Course ditribution through eBig3 system shows good results in learners engegement into knowledge acquisition process and achievement of lifelong learning goals. Majority of involved learners emphasized successful synergy of different kinds of technology, useful tools and overall expedient implementation of this system.

An availability of joining the course, which is taken a shine exactly at the moment of TV watching, looks great. Potential learners can apply for the course just by sending the text message on the phone number shown on the TV screen.

Course application procedures' simplicity and their openness for wide public make the courses placed within the eBig3 system as the real MOOCs (Massive Open Online Courses). Thousands of people can use the system simultaneously from different locations. Although, the system's text-messaging tool should be improved to tide over the business of sending reply messages with the course registration instructions if the system receives hundreds and thousands joining requests in concurrent, almost the same, time.

Provision of onsite workshops and face-to-face meetings is still controversial. On the one hand, this helps tutors to stay maintain contact with learners, and students – to receive the answers on unclear course topics and necessary assistance, on the other hand, we ought to consider Web 2.0 tools to solve a problem and reduce project expenses.

Further eBig3 system enrichment by other tools may make its work more effective. This issue will be considered in later studies which could lead in development and adding to the system of reflective ePortfolio instrument to improve learning outcomes and enhance sistem users competence development. Such ePortfolios ought to be considered also as the helpful tool which could allow tutors

to give more attention to the most complicated problems, sophisticated issues and individual consulting.

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The possibilities of ICT application in technology lessons at Lithuanian general education schools

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Abstract: The paper considers a new dimension of skill development opportunities of information and communication technology (ICT) in Lithuanian general education schools. The paper aims to investigate how much and how ICT competences are determined by the schools' material base, the headmasters' and leaders' approach to the application of ICT, their competences to use ICT in classrooms and development possibilities. The research methods: analysis of literature and documents, empirical research, statistical data analysis, graphical analysis, correlation analysis. The research was carried out in 2011 – 2012 school year. The research included 215 headmasters from 22 schools of the country's regions and 112 technology teachers. Headmasters say that the introduction of ICT in Lithuanian schools has begun a long time ago and is going quite successfully. Headmasters' and technology teachers' skills in computer technology are sufficient, they have some kind of documents that evidence this. The greatest impact on ICT skill development is determined by director and teachers' attitudes, willingness to develop these competences, ability to use modern technologies and new programs, continuous development of ICT skills.

Keywords: ICT, technology teachers, ICT competences.

Introduction

The field of information and communication technologies (ICT) is constantly changing and improving: it is the coming of the second generation of wed technologies (web 2.0), the rise of social networks, lines capacity, mobility and continuous access, cheap and free cloud computing services, the rapid integration and possibilities to apply them for personal needs. These changes force to view and modify the educational process. Educational experts see the students' need not only to use computer programs in various fields but also to know how to create digital content, apply and experiment in different areas (Dagienė, Kurilovas, 2012; Informatikos ir informacinių…, 2012).

Many researchers in the field of education (Joseph, Nacu, 2003; Aleven, Stahl, 2003; Paladino, 2008) have been investigating various aspects of the impact technology-rich teaching environment has on the learners. Learners appreciate the opportunity to choose from a variety of learning environment, and the use of ICT promotes interest in the subject, the need to attend classes, collaborate with teachers, participate in school activities and develop the basic competences. Students have to learn how to work, be inventive, be able to master ICT tools and methods, to process different types of information, adapt it to their needs, and improve continuously (Plowman, McPake, Stephen, 2010; Dagienė, Kurilovas, 2009).

The schools in the European Union willingly use ICT tools in the teaching process, the number of computers and high-speed Internet access increase every year, however the level of ICT usage and skills is very unequal. An integrated approach to the use of ICT at schools is necessary, i.e. we need to invest not only to infrastructure but also to pay more attention to teachers' training, to create the positions of ICT coordinators (Dagienė, Kurilovas, 2009).

One of the problems of ICT application in teaching process is the experience of students and teachers, the differences in opinions about these technologies, but only the teacher can decide to what extent and for what purposes ICT will be used in the educational process. Therefore, the teachers' lack of competences in ICT has a significant impact on students' abilities to use new learning tools. This conclusion is supported by the results of the study of International ICT application in education (Informacinės technologijos…, 2010; Dagienė, Kurilovas, 2009).

The analysis of researches shows that the Lithuanian schools, compared with the OECD average, are particularly poorly equipped with audio-visual equipment and software for learning (Mokymosi aplinka…, 2012). For the successful development of information skills using ICT, the schools must constantly update normative public documents (general programs, special programs), material resources (computers, Internet, intranet, educational programs) and improve teachers' qualifications (qualified teachers ready for the job, administration).

A number of foreign and Lithuanian scholars research the fields of ICT implementation and dissemination, development of information skills at schools: R. Krumsvik (2008); V. Dagienė, E. Kurilovas (2009); V. Brazdeikis (2009), P. Pečiuliauskienė (2010), T. Petkus, K. Nekrašaitė (2009), J.Galkauskas (2007), E. Britton, B. De Long-Cotty, T.Levenson (2005); J. K. Galkauskas (2007); B. Žygaitienė (2011); D. Pendergast, S. L. T. McGregor & K. Turkki (2012).

A number of studies and international projects related to the introduction of information technology and development of information skills at schools have been carried out in the country: from 2004 a general computer literacy tests have been conducted every year, a lot of scientific, methodological, reference works, reports that are intended to convey information about the experience of technologies application in education have been prepared. Since the topic of the development of ICT skills in technology lessons has a little research, it is necessary to investigate the possibilities to apply ICT in the classrooms.

The paper analyses in a new dimension the development of information technology skills in Lithuanian general education schools using ICT. Since in Lithuania this topic has not been widely analyzed, there is a problem – to investigate how much and how a school's material base, the attitude of headmasters and technology teachers to the application of ICT, competences to use ICT in technological education and the possibilities of ICT skills development determine the development of students' information technology skills.

Methodology

According to foreign researchers I. Rockman (2004); M. B. Eisenberg, C. A. Lowe, L. Spitzer (2004), technological literacy will not be effective in the communication world if information literacy skills are not well mastered. There is the need to develop both the information literacy and communication competence that ensures a continuous improvement of the society.

The turning point in Lithuanian schools in respect of application of information technologies in the educational process has not happened yet because the goals of education and classroom activities are still focused on the traditional teaching (Informacinės technologijos…, 2010).

According to the Lithuanian scientists (Brazdeikis, Navickaitė, 2008; Brazdeikis, 2009, Dagienė, Kurilovas, 2009), continuing the computerization of Lithuanian schools the attention is given to a high-speed Internet connection at schools, the installing of computerized working places for students and teachers, the development of a modern and interactive training (learning) material, the creation of learning spaces, the development ICT competence, the curriculum adaptation to work in cyberspace.

In order to clarify the ICT need at schools during technology lessons developing students' ICT skills.

In order to determine the need for ICT in school during technology lessons, developing pupils' ICT skills used the methods:

Theoretical methods – the analysis of scientific literature and educational documents.

Empirical methods – a questionnaire was filled out by the headmasters and teachers in order to determine their approach to the training opportunities of information technology skills in the general schools during information technology lessons.

Statistical – quantitative n=215 headmasters of general schools, n=112 the analysis of questionnaires filled out by technology teachers. The mathematical statistical analysis of the data was carried out using computer program SSPS (Statistical Package for the Social Sciences) 19.0 for Windows, Excel program was used for the graphical representation of the results. A frequency table and graphical

analysis were used for the systematization of data and description of frequency distributions. The correlation analysis was used for the modeling of feature interdependence.

The research was carried out during 2011 – 2012 school year in Lithuanian general education schools.

The questionnaires were sent by e-mail to headmasters and technology teachers. The study included 212 headmasters from 22 schools of the country's regions and 112 technology teachers.

Results and discussion

Seeking to achieve the goal of Lisbon treaty to become a competitive, dynamic and knowledge-based economical space in the world, the EU has not only to change the economy, but also to pose high demands in the fields of social welfare and the modernization of educational system. New basic skills that are included in the Lisbon European Council conclusions are the following: information technologies, foreign languages, technological culture, entrepreneurship and social skills (Mokymosi visą gyvenimą Memorandumas, 2001).

According to A. Glosienė (2006), in the society of information and knowledge we need to understand the variety of information sources and their typology, to be able to recognize and use the opportunities offered by them.

According to M. Castells (2005), ICT is a different level of technology that allows a creation of the world of network culture, which is characterized by a continuous, new knowledge-based innovations and their search. A general education becomes an integral part of ICT use in various areas. The use of ICT opens up new perspectives, and after a full integration of computers into curriculum there is an opportunity to get to know better the environment, cultural differences and similarities, to develop communication skills, it encourages creativity, openness to innovations, and helps to create a flexible and open structure of education (Informatikos ir informacinių…, 2012).

Lithuanian education system corresponds to the European attitudes, defines values and skills, as well as the main competences that need to be developed. The purpose of general education is to provide an individual the basis of socio-cultural and civil maturity, general literacy, the element of technological literacy. The educational organizations are in the forefront of change because students are the most susceptible to the changes in society, they absorb a variety of technological innovations and learn how to use them. ICT has to be used in all school activities, it has to be closed linked to the personal needs , advanced training tools have to be implemented, educational methods and content have to changed, in other words, a school culture of information age has to be created (Mokyklų vadovų…, 2007; Dagienė, Kurilovas, 2009; Brazdeikis, 2009; Žygaitienė, 2011).

Since 1991 Lithuania started to develop the information society, so the introduction of ICT in Lithuanian educational system has become a priority. During the implementation of European educational guidelines a number of Lithuanian Republic documents concerning the implementation of ICT in education have been introduced.

According to A. Otas, E. Telešius, V. Petrauskas (2007), the success of ICT implementation in education is determined by three factors: the quantity and quality of hardware, attractive and understood application programs, the computer literacy of teachers.

In recent years, the number of computers in Lithuanian schools has increased significantly (Table 1), application programs have also become more accessible and cheaper. However, the ratio of students and computers in Lithuanian general education schools is lower than in other developed countries. In OECD countries on the average 100 pupils have 20 computers, meanwhile in Lithuania compared to 2006–2007 year data 100 pupils had 6,5 computers and in 2011–2012 year they had 13,4 computers (Lietuvos statistikos…, 2012).

Table 1

The number of computers at schools, 2006–2012 year (Lietuvos statistikos …, 2012)

Statistical indicators	2006–2007	2007–2008	2008–2009	2009–2010	2010–2011	2011-2012
The number of computers connected to the Internet	36053	39521	45628	48178	56454	63 972
The number of computers	44741	47452	53546	55557	64022	71 320
The number of computers for 100 pupils	6.5	7.2	8.5	9.3	11.3	13.4
Computers used for training	33520	35313	39399	40843	46998	52 866

In order to find out how the school's current development in regard to the implementation and use of information technologies is assessed, the headmasters were asked: "*How do you assess the current school's state in regard to the implementation and use of information technologies?*". the majority of respondents (61,4 percent) said that the introduction of ICT as schools started a long time ago and have been quite successful, and schools are sufficiently supplied with information technology. And only a small percentage of respondents indicated that the school is in a stage of ICT planning and implementation.

Lithuanian headmasters that participated in the survey are certain that the priority area of ICT implementation is the becoming of school libraries to school information centers, so it is important to supply them with the latest hardware and software. The survey results show that (Table 2) that school libraries are sufficiently provided with information-cognitive literature ($\rho = 0{,}504^{**}$ $p < 0{,}0001$), they are information centers and provide information to the school community. The correlation analysis of surveyed headmasters and their attitude about school supply of computers showed that ($\rho = 0{,}543^{**}$ $p < 0{,}0001$) European Structural Funds and targeted use of public funds are very important to the computerization of schools .

Table 2

The correlation analysis of headmasters' opinion about schools' supply

	The school is sufficiently equipped with hardware	**The library is sufficiently equipped with information-cognitive literature**	**The library is information center and provides information to the community**	**School's assessment in respect of ICT implementation and use**	**Technology classrooms equipped in accordance with the requirements**	**Equipped modernized library**	**Finance from European Structural Funds**
The school is sufficiently equipped with hardware				$\rho = 0{,}469^{**}$ $p < 0{,}0001$			
The library is sufficiently equipped with information-cognitive literature			$\rho = 0{,}504^{**}$ $p < 0{,}0001$		$\rho = 0{,}403^{**}$ $p < 0{,}0001$		
The library is information center and provides information to the community		$\rho = 0{,}504^{**}$ $p < 0{,}0001$				$\rho = 0{,}417^{**}$ $p < 0{,}0001$	
School's assessment in respect of ICT implementation and use	$\rho = 0{,}469^{**}$ $p < 0{,}0001$						
Targeted state funding							$\rho = 0{,}543^{**}$ $p < 0{,}0001$

***when coefficient of correlation ρ = 0,4–0,6, the relation is essential;*

TIMSS and PIRLS surveys seek to determine the impact ICT has on students' learning. In 2006 the international study of ICT implementation in education SITES showed that a high percentage of teachers (41 percent) did not use computers in the teaching process. 78 percent of them said that the lack of computers were the main reason why they did not use computers in the teaching process. Other reasons, such as the lack of adequate teaching materials or lack of skills, were identified by teachers as less important. The difference from the EU average is very high, but positive because Lithuanian teachers identify technical supply as the main reason. Only 7 percent (EU average 16 percent) of Lithuanian teachers see no sense in using computers in the education process and only 3 percent (EU average 9 percent) do not want to apply them. The researches show that improving the supply of computers and other information technologies, and improving teachers' competence in ICT, the use of ICT in education increases (Brazdeikis, Navickaitė, 2008, Informacinės technologijos…, 2010).

Developing students' information skills an important factor is the attitude of headmasters and teachers. According to the headmasters' point of view, technology teachers in order to convey the new material in a more flexible and interesting way have to improve constantly, this proposition is correct (Table 3) and you can see an essential connection (ρ=0,570; p<0,0001). Correlation relations between headmasters claim have been detected. If the teachers are flexible and can convey the new material in an interesting way, the students learn how to look for literature and this is reflected in students' information skills development (ρ=0,534; p<0,0001) they are as well acquainted with the latest technology and computer programs (ρ= 0,649; p<0,0001). The use of ICT helps to personalize education (essential relation $\rho=0,453^{**}p< 0,0001$),increases students' motivation (essential relation $\rho=0,468^{**}p<0,0001$, strengthens students' general skills (communication, interaction), and this encourages them to improve themselves (essential relation $\rho = 0,450^{**}p < 0,0001$).

Table 3

Headmasters' opinion about the importance of IT use in classrooms, correlation analysis

	Helps to individualize training (learning)	**Helps to convey new material in a more flexible and interesting way**	**Increases students' motivation**	**Strengthens students' basic skills (cooperation, communi-cation)**	**Students learn how to look for literature**	**Students become familiar with the latest techniques, applications**	**Encourages teachers to improve**
Helps to individualize training (learning)		$\rho=0,453^{**}$ p 0,0001					$\rho = 0,450^{**}$ $p < 0,0001$
Helps to convey new material in a more flexible and interesting way	$\rho=0,453^{**}$ $p< 0,0001$		$\rho=0,468^{**}$ $p<0,0001$		$\rho=0,534^{**}$ $p<0,0001$	$\rho=0,649^{**}$ $p<0,0001$	$\rho=0,570^{**}$ $p<0,0001$
Increases students' motivation		$\rho=0,468^{**}$ $p<0,0001$					
Strengthens students' basic skills (cooperation, communication)					$\rho=0,464^{**}$ $p<0,0001$	$\rho=0,400^{**}$ $p<0,0001$	$\rho=0,400^{**}$ $p<0,0001$
Students learn how to look for literature		$\rho=0,534^{**}$ $p<0,0001$		$\rho=0,464^{**}$ $p<0,0001$		$\rho=0,525^{**}$ $p<0,0001$	$\rho=0,525^{**}$ $p<0,0001$
Students become familiar with the latest techniques, applications		$\rho=0,649^{**}$ $p<0,0001$		$\rho=0,400^{**}$ $p<0,0001$	$\rho=0,525^{**}$ $p<0,0001$		$\rho=0,498^{**}$ $p<0,0001$
Encourages teachers to improve	$\rho=0,450^{**}$ $p<0,0001$	$\rho=0,570^{**}$ $p<0,0001$		$\rho=0,400^{**}$ $p<0,0001$	$\rho=0,525^{**}$ $p<0,0001$	$\rho=0,498^{**}$ $p<0,0001$	

***when coefficient of correlation ρ = 0,4–0,6, the relation is essential; ***when coefficient of correlation is ρ = 0,6–0,8, the relation is strong;*

The research groups of respondents were asked a question what benefits ICT use in technology classes for 5-8 graders bring. From the technology teachers point of view, the use of electronic learning tools during technology lessons develops information and technical skills of students from 5-8 grades, partially develops critical thinking, motivation and creativity. 43.3 percent of technology teachers and 59.1 of headmasters indicated that the use of ICT in education process helps to increase achievements during technology classes of students that learn in 5-8 grades.

The computer literacy of a headmaster reveals his or her ability to use technologies for school management. When planning a school teachers' professional development, it is important to take into account individual needs of each teacher, their professional and technological readiness. The professional development is not an onetime participation in computer literacy courses: teachers need to update their knowledge constantly, participate in various events, to communicate (Pedagogų rengimas…, 2006; *Moderni informacijos…*,2006).

The aim of our study was to find out headmasters' and teachers' lever of computer literacy. The data show (Figure 1) that 89,7 percent of headmasters have literacy supporting documents and a very small percentage of them (9,8 percent) have a very good computer skills, but no documents. 0,9 percent of headmasters are not satisfied with their IT literacy. The majority (74,0 percent) of technology teachers have computer literacy supporting documents. Others indicated that they are proficient in using IT, but do not have documents that prove this (23,2 percent) and a very low percentage (1,8 percent) indicated that their knowledge in the field of IT is weak. The presented data show that the European computer literacy certificate (ECLC) belongs to more technology teachers (55,4 percent) than headmasters (31,2 percent). However, 58,1 percent of headmasters claim to have a different kind of computer literacy document, meanwhile only 19,6. percent of technology teachers have different kind of IT literacy certificates.

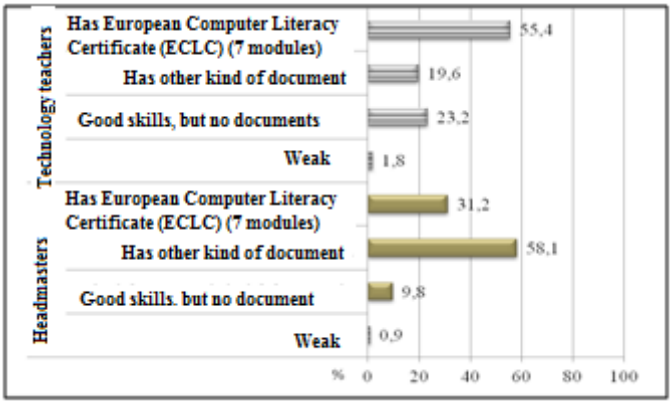

Figure 1. Data on respondents' computer literacy.

The data of the study "The objectives of ICT access and use in European schools in 2006" show that 48,4 percent of Lithuanian teachers claim to have good computer skills, 19,9 percent claim to have very good computer skills. 39 percent indicate that they are able to work very well with word processing programs (EU average– 65 percent), 30 percent believe that they have a very good computer presentation skills (EU average – 34 percent), and 47,9 percent of teachers claim that they know how to use e-mail very well (EU average – 65,9 percent) (Brazdeikis, Navickaitė, 2008; Dagienė, Kurilovas 2009).

Teachers continuously improve their qualification and this is noted by both headmasters and technology teachers. The respondents' attitudes about the importance of ICT skills in educational process are illustrated by the gained computer literacy documents as well as the disposition to improve and update ICT skills. The technology teachers' claims show significant relations between responses, as well as in the survey of headmasters. The correlation analysis shows (Table 4) a strong relationship between MES organized information skills training courses, training for teachers and universities (χ^2=0,539; p<0,0001) and courses prepared by the EDC center (χ^2=0,628; p<0,0001). The propositions of technology teachers confirm that the international projects' services are used the least.

Table 4

Technology teachers' claims about training courses, correlation analysis

	In the international projects	MES organized courses	Education Development Center (EDC)	University courses	Remotely in (LieDM) website
In the international projects		*0,165*	*-0,006*	*-0,192**	*-0,128*
MES organized courses	*0,165*		*r=0,628*** *p<0,0001*	*r=0,539*** *p<0,0001*	*r=0,451*** *p<0,0001*
Education Development Center (EDC)	*-0,006*	*r=0,628*** *p<0,0001*		*r=0,643*** *p<0,0001*	*r=0,608*** *p<0,0001*
University courses	*-0,192**	*r=0,539*** *p<0,0001*	*r=0,643*** *p<0,0001*		*r=0,583*** *p<0,0001*
Remotely in (LieDM) website	*-0,128*	*r=0,451*** *p<0,0001*	*r=0,608*** *p<0,0001*	*r=0,583*** *p<0,0001*	

*** when coefficient of correlation ρ = 0,6–0,9, the relation is strong;*

The second picture shows in what IT areas technology teachers would like to improve their skills. The study showed that technology teachers would like to get more knowledge working with multimedia and hypertexts (78,1 percent) working with programs for technology education (76,6 percent). Teachers would like to learn the most how to use distance learning programs (20,6 percent).(Figure 2).

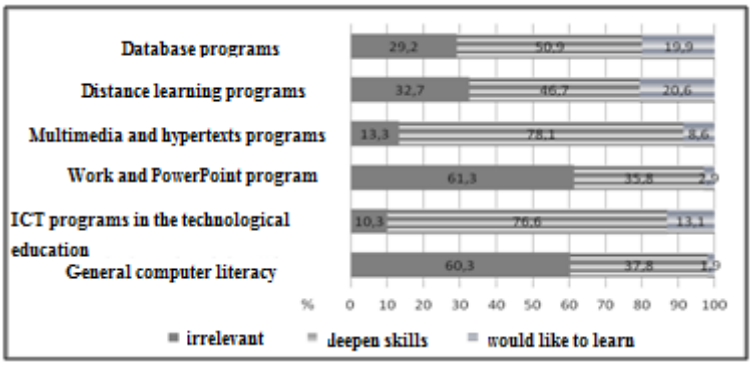

Figure 2. IT areas that can be improved by technology teachers.

The headmasters involved in the study are planning on raising school rating in all fields and seek for good results in the implementation of information technology, developing students' information skills (Figure 3). Headmasters believe that it is important to train teachers: 88,6 percent of respondents noted that this is done regularly and only (8,7 percent) plan on doing this. The update of software and license programs is also very important (56,3 percent). Almost half of headmasters constantly update technology classrooms (48,4 percent), one third of respondents (31,6 percent) intend to do this in the near future. Almost half of the surveyed headmasters cooperate with schools that have good experience, and with other educational partners.

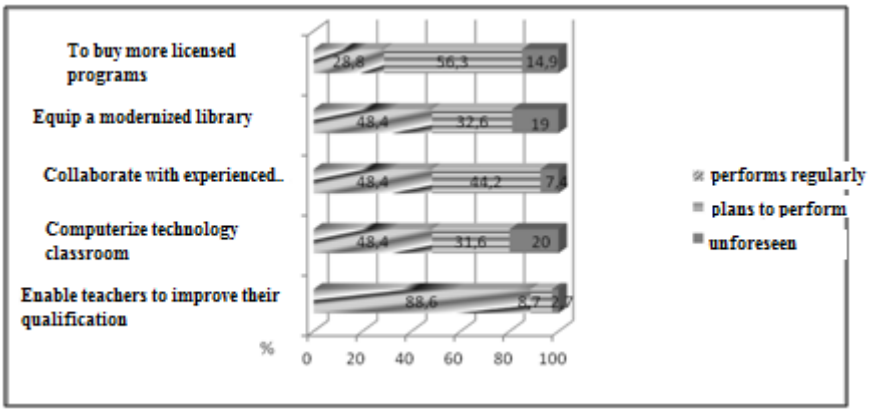

Figure 3 Improvement perspectives of information technology at schools

The strength of Lithuanian teachers is their positive attitude towards the use ICT in educational process. 93.8 percent of teachers strongly supports the view that the use of ICT in educational process will help them to increase students' motivation and achievements. According to this indicator only Portugal (95,2 percent) and Cyprus (95,1 percent) are ahead of Lithuania. The same strong motivation teachers also have in Great Britain (93,8 percent) (Mokymosi aplinka…, 2012).

Conclusions

- Responding to the European educational guides, the documents regulating information technologies in education and training have been introduced in the Republic of Lithuania. The implementation is funded by state and local government budgets, business and European Union structural funds. In the near future Lithuania should catch up with the European average in the field of computerization. A quantity of hardware at schools in 2006 – 2012 years has increased by more than a half, applications are becoming more accessible and cheaper. School libraries have been equipped with the latest hardware and software and they have become information centers of the schools.
- The majority of Lithuanian headmasters (61,4 percent) define ICT implementation at schools as quite successful. Only one fifth of headmasters are satisfied with ICT supply at schools, and the majority is willing to use ICT more widely. Headmasters say that the use of ICT in educational process helps students to look for literature, get acquainted with the latest technology and computer programs. The use of ICT motivates teachers to develop, helps to convey new material in an interesting and flexible way, stimulates students' basic skills and increases students' motivation.
- The attitudes about ICT use in educational process of both headmasters and teachers are illustrated by the documents that evidence their computer literacy: most of headmasters and teachers have some kind of documents that evidence computer literacy.
- Recognizing the rapid change in ICT field, headmasters and technology teachers constantly improve ICT competences: MES, EDC, university courses, training courses and remotely on (LieDM) website. The study has showed that technology teachers are planning on deepening their knowledge working with multimedia and hypertexts, as well as working with programs for technological development. They would like to learn the most how to use distance learning programs.

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Students' information skills in the Latvia University of Agriculture

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Abstract: The advent of the internet along with various other electronic and digital resources has highlighted the issues. Some students are using the internet as their first port of call beyond the reading list. They need to address questions relating to the provenance, accuracy and reliability of the material, which are largely unnecessary in established areas of academic publishing. The information in books, journals and other printed forms has been subject to a variety of quality assurance processes - reputable publishers, authors with academic credentials, texts recommended by tutors, careful library spending to ensure a match of material to need. With the internet sources, none of the quality assurance mechanisms can be assumed. The onus is on the user to apply a critical faculty.
Information technology has made information superficially much easier to access and use. By reducing all information to a standard format the web page it masks the differences in the way in which information is generated, and differences in the kind of information it is supplying.
The information skills model attempts to show the relationships between the competent information user at the base level, and the much more advanced idea of information literacy.
The aim of the research was to clarify first year and postgraduate students' information skills. Data processing will be used chi-square and Mann-Whitney methods. First year students will largely be at the bottom of the information skills model, whilst postgraduate and research students will aim to be towards the expert end.

Keywords: Information skills, information literacy, information competence, pillars

Introduction

Information competencies are a key factor in lifelong learning. They are the first step in achieving educational goals. The development of such competencies should take place throughout people lives, especially during their educational years. Through the creation, with faculty, of curriculum-integrated programs, lecturer should actively contribute to the students' learning processes in their search to enhance or develop the skills, knowledge and values needed to become lifelong learners.

Information competencies are a group of skills to identify an information need, as well as retrieving, evaluating, using and reconstructing the knowledge contents of the retrieved information resources. Synonyms: information skills, information capabilities, information literacy.

A working definition of information literacy as proposed in 2004 by the UK-based Chartered Institute of Library and Information Professionals (CILIP): *information literacy* is knowing when and why you need information, where to find it, and how to evaluate it, use and communicate it in an ethical manner (CILIP, 2004). *Information literacy* is information competencies that imply the capacity to identify when information is needed, and the competence and skill to locate, evaluate and use information effectively. Synonyms: information skills, user education, information competencies (Lau, 2006).

Information skills could be defined as the capacity to identify an information need and the aptitude to satisfy it. Information competence is the skill or aptitude to do something; while ability is regarded as the capacity and willingness to do something. Synonyms: information competencies, information capacity (Diccionarios Real Academia Española, 2005).

A recent paper by Sheila Corrall, Librarian of the University of Reading, had highlighted the lack of consideration given to information skills in many of the recent publications and discussions concerning the 'key skills' area (Corrall, 1998).

The work of BECTA (British Educational Communications and Technology Agency) has gone a long way to establishing information skills as a recognised aspect of the national curriculum for primary and secondary schools (BECTA, 2013).

Information handling, defined by Corrall, includes information sources, evaluation criteria, navigation methods, manipulation techniques, and presentation issues. This kind of distinction is supported by others, who also challenge the tendency to equate computers with information, and hence to mistake computer literacy for information literacy. "This is a dangerous myth, for it assumes that information is only that which is storable and manipulable in a computer" (Taylor, 1986).

The advent of the internet along with various other electronic and digital resources has highlighted the issues. Some students are using the internet as their first port of call beyond the reading list. They need to address questions relating to the provenance, accuracy and reliability of the material, which are largely unnecessary in established areas of academic publishing. The information in books, journals and other printed forms has been subject to a variety of quality assurance processes - reputable publishers, authors with academic credentials, texts recommended by tutors, careful library spending to ensure a match of material to need. With the internet sources, none of the quality assurance mechanisms can be assumed. The onus is on the user to apply a critical faculty.

Doherty describing information as an essential commodity for survival, and states "It is our intention to teach our users to become independent and informed information consumers on their way to becoming lifelong learners" (Doherty, 1999).

The aim of the research was to clarify first year and postgraduate students' information skills. The subject of evaluation - information skills, remains unchanged and the quantity of respondents evaluating information skills is changing, as survey was carried out in first-year bachelor students and master course students.

Methodology

In 1999, The SCONUL Working Group on Information Literacy published "Information skills in higher education: a SCONUL position paper", introducing the Seven Pillars of Information Skills model (SCONUL, 1999) and were updated in 2011 (SCONUL, 2011).

The information skills model (Figure 1) attempts to show diagrammatically the relationships between the competent information user at the base level, and the much more advanced idea of information literacy. It is expected that as a person becomes more information literate they will demonstrate more of the attributes in each pillar and so move towards the top of the pillar. The pillars show an iterative process whereby information users' progress through competency to expertise by practising the skills. Only those at the higher end will be practising the seventh skill level.

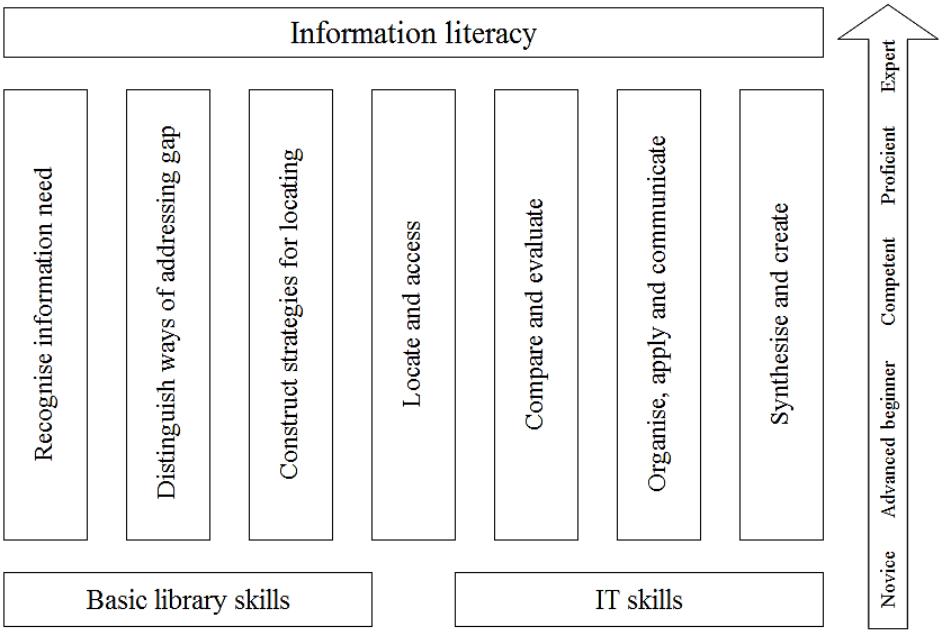

Figure 3. Information skills model (SCONUL, 1999)

At the base of the model are the twin fundamental building blocks of basic library skills and basic IT skills. The former is very much apparent in the user education programmes of academic libraries, the latter can be seen in developments such as the European Computer Driving Licence. Between the base and the higher level concept of information literacy appear the seven headline skills and attributes, the iterative practice of which leads from being a competent user to the expert level of reflection and critical awareness of information as an intellectual resource.

Any information literacy development must therefore also be considered in the context of the broad information landscape in which an individual operates and their personal information literacy landscape (Bent, Gannon-Leary, 2007).

The model is conceived as a three dimensional circular "building", founded on an information landscape which comprises the information world as it is perceived by an individual at that point in time (Figure 2).

The picture is also coloured by an individual's personal information literacy landscape, in other words, their aptitude, background and experiences, which will affect how they respond to any information literacy development (SCONUL, 2011).

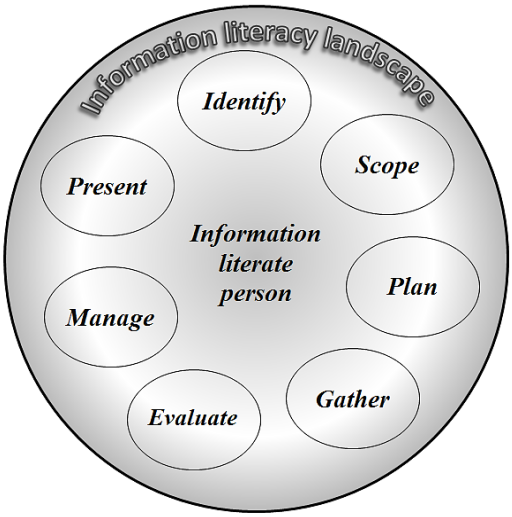

Figure 4. Seven pillars of information literacy (SCONUL, 2011)

The circular nature of the model demonstrates that becoming information literate is not a linear process; a person can be developing within several pillars simultaneously and independently, although in practice they are often closely linked.

This model defines the core skills and competencies (ability) and attitudes and behaviours (understanding) at the heart of information literacy development in higher education.

Survey was conducted among 36 first-year students and 20 master course students of Latvia University of Agriculture. A one-time inquiry type survey was performed, the goal of which was to use the obtained information in describing the whole statistical body.

Questions for survey information skills were weighted differently according difficulty levels, identical seven pillars. Specifically, was posed the following research questions:

First pillar – *identify*: Can you determine when to perform the work need more information? Can you independently determine your level of knowledge on a search topic?

Second pillar – *scope*: Can you describe the different types of information source and to choose a more suitable? Can you use a new, previously never seen before information sources?

Third pillar – *plan*: Can you create a plan to search for information? Can you determine suitable methods of search strategy?

Fourth pillar – *gather*: Can you use ICT (free & paid resources) to collect new data? Can you exchange of information cooperate with different organizations?

Fifth pillar – *evaluate*: Can you evaluate the quality and objectivity of the finding information? Can you critically evaluate your discoveries?

Sixth pillar – *manage*: Can you use citations and references? Do you know the conditions infringement of copyright?

Seventh pillar – *present*: Can you summarize the finding information to create a new base of knowledge (concept)? Can you choose the suitable place of publication of your research?

The SPSS computer program was used for mathematical processing and analysis of the data. The mathematical processing of the data was carried out by using describing statistics. To clarify equal distribution of the answers and conformity with the theoretical distribution of data, a chi-square test was performed with each selection.

Results and discussion

The survey was conducted with respondents to gain an understanding their experiences about information skills. The answers to the survey questions are summarized by seven pillars – identify, scope, plan, gather, evaluate, manage and present. The answers frequency from respondents to questions about information skills (*yes, I'm sure, I know* or *no, I'm not sure, I know*) can be seen in Figure 3.

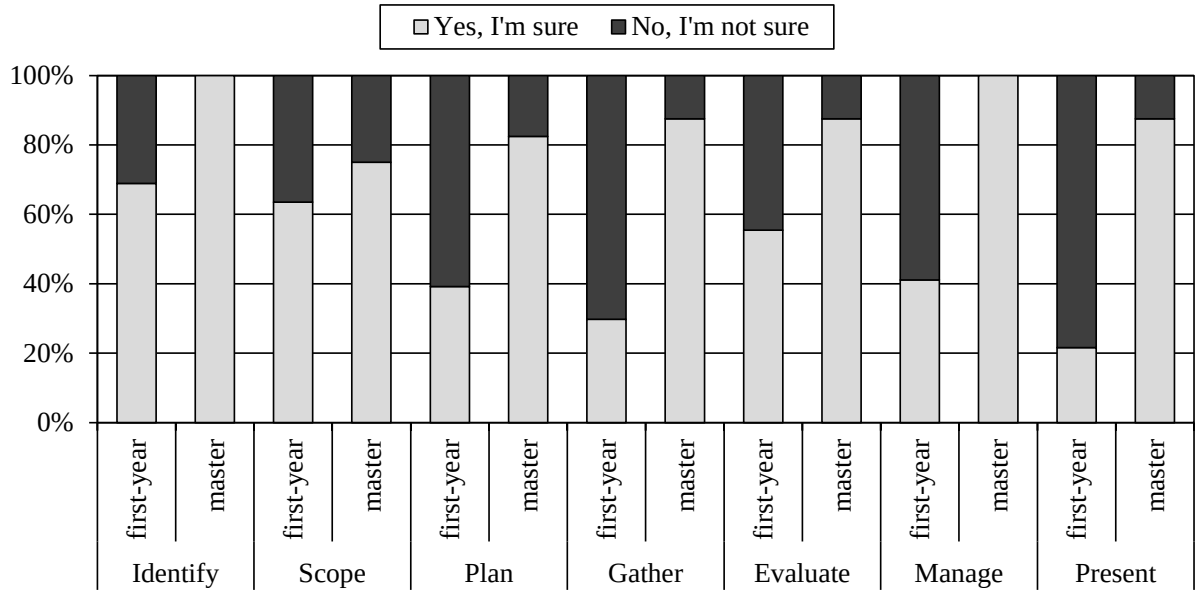

Figure 3. Respondents answer to questions about information skills

Some students clearly recognize deficiencies in their information literacy preparation. For example, researcher D. Peter realizes the survey of 900 college students, found that 40 percentages of them indicated they had some gaps in their research skills (Peter, 2005). Other research, however, has shown that students with below-proficient information skills levels tend to greatly overestimate their information skill levels (Gross & Latham, 2007; Gross & Latham, 2011).

Studies using more objective measures of information literacy skills suggest that students may not be as competent as they report. For example, the Educational Testing Service, found that, of 3000 college students and 800 high school students, only 13 percentages demonstrated knowledge in information skills on the ICT (Foster, 2006).

The research found students perceived the phenomenon of students' learning information skills as ways of completing and fulfilling their classroom assignments; which are essential for the students to construct identity in the context of their classroom and becoming competence in their field of study.

Using the information to complete and fulfil their classroom assignments and assessments, students further believed that they actually engaged in a meaningful experience, in which their learning endeavours were recognized as competence in their field of study (Aidah, 2010).

The answers frequency from respondents were statistically analysed with the help of chi-square test, with a hypothesis of correspondence of the observed data to the theoretical data (Table 1 - 2).

Table 1

Chi-square test statistic questions 1-7

	Question number						
	1	**2**	**3**	**4**	**5**	**6**	**7**
Asymptotic significance (first-year students)	0.000	0.622	0.005	0.622	0.005	0.869	0.033
Asymptotic significance (master course students)	0.000	0.000	0.000	0.000	0.000	0.000	0.000

1 - Can you determine when to perform the work need more information?

2 – Can you independently determine your level of knowledge on a search topic?

3 – Can you describe the different types of information source and to choose a more suitable?

4 – Can you use a new, previously never seen before information sources?

5 – Can you create a plan to search for information?

6 – Can you determine suitable methods of search strategy?

7 – Can you use ICT (free & paid resources) to collect new data?

Table 2

Chi-square test statistic questions 8-14

	Question number						
	8	**9**	**10**	**11**	**12**	**13**	**14**
Asymptotic significance (first-year students)	0.005	0.622	0.411	1.000	0.033	0.033	0.000
Asymptotic significance (master course students)	0.000	0.000	0.000	0.000	0.000	0.000	0.000

8 – Can you exchange of information cooperate with different organizations?

9 – Can you evaluate the quality and objectivity of the finding information?

10 – Can you critically evaluate your discoveries?

11 – Can you use citations and references?

12 – Do you know the conditions infringement of copyright?

13 – Can you summarize the finding information to create a new base of knowledge (concept)?

14 – Can you choose the suitable place of publication of your research?

It can be concluded that with the probability of 95%, answers from question number 2, 4, 6, 9, 10 and 11 are distributed evenly (p-value (asymptotic significance) > 0.05), thus the answers from respondents didn't differ significantly. That means that first-year students are not sure that they know the necessary information skills.

Since the master course students' p-value (asymptotic significance) in all cases is less than 0.05, with a probability of 95% it can be concluded that the amount of respondent answers varies significantly and is not distributed evenly. Statistically significant prevalence was for the answer *yes, I'm sure, I know* in the sample 'master course students'.

Conclusions

This research presents a new way of thinking about how to improve student learning in both traditional and distance learning environments. Moreover, public and national libraries may to put more efforts to increase tertiary students' awareness to use their resources and facilities as a supplementary to their university libraries.

Findings from this research may also be transferable to understanding the development of information skills in other user populations, such as children and seniors.

The findings may be applied to encourage higher academic achievement by first-years students, create more informed students and increase the number of university graduates who are prepared to go in master course and PhD programs, as well as compete in the marketplace and become lifelong learners.

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Use of IT programs and tools for organizing independent studies in mathematics e-environment

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Abstract: In order to improve mathematics study process at Latvia University of Agriculture (LUA) one of the major challenges is ICT integration in the study process. At the Department of Mathematics of LUA has been created a structural scheme of the mathematics study form modules in which in addition to lectures and practical works, more attention is paid to the IT software integration in the learning process, as well as individual works for independent studies. Mathematics study process has been improved with an e-learning environment Moodle, in which there are placed the study materials (including interactive materials). The aim of the research was to investigate the current situation in Department of Mathematics and to improve the students' independent studies using ICT: 1) the development of practical tasks database in e-environment according to mathematical topics and types of solutions; 2) the exploration of Random Assignment Generator options and their adjustment for individual works assignment in mathematics in e-courses; 3) the creation of the solution examples with MathCad (for bachelor level) in mathematics and their accessibility in e-environment. Results of student survey shows that the use of MathCad for solution verification in computer classes and solutions' examples placed in e–environment, allows students to learn mathematics software independently, but for teachers reduce the time for checking students' individual works.

Keywords: students' independent studies, individual works, IT tools, e-studies

Introduction

European higher education reformation known as the Bologna Process comes to a close, its impact on the field of mathematics is significant in many ways. Mathematics degrees and programs are changing across Europe, and in some cases, with serious side effects. On the other hand, there have been considerable increases in the percentage of international students, who tend to major in mathematics and mathematics-related fields, attending European universities (Taylor-Buckner, 2010).

The main research of the ERDF project "Cross-border Network for Adapting Mathematical Competences in the Socio-economic Development (MatNet)" which has been implemented since 2011 till 2013 by the Departments of Mathematics of the Latvia University of Agriculture (LUA) and Siauliai University (SU) in Lithuania was Curriculum development which is based on two pillars: 1) changes in curriculum structure related to learning outcomes and competences and credit-module system; 2) improvement in the organization of study process where the focus is on study forms modules, on integration of ICT in study process and collaborative learning in mathematics (Balciunas, 2011).

The main objective of mathematics of recent years was reviewed to give students the knowledge necessary for better acquisition of technical subjects. But nowadays, besides the applications, students also need the basis of theoretical knowledge in their future work as well as understanding of the available literature and its creative use. Mostly all students spend only one year (engineering students - two years) to acquire the basic course in mathematics. The problem is: how to organize the mathematical education in the first or the second year of studies in such a manner which would be appropriate both for studying technical subjects and for the working life?

The aim of this research was to investigate the current situation at the Department of Mathematics of LUA and to find a way to improve organization of students' independent studies using ICT. Therefore, the emphases are going to be on:

1) the development of practical tasks database in e-environment according to mathematical topics and types of solutions;
2) the exploration of Random Assignment Generator options and their adjustment for individual works assignment in mathematics in e-courses
3) the creation of the solution examples with MathCad in mathematics and their accessibility in e-environment.

Furthermore, it is important to find out students' opinions on the proposed organization of independent studies in e-environment.

Methodology

In order to improve mathematics study process at LUA one of the major challenges is to revise the mathematics study forms and to integrate ICT in the study process.

Structural scheme of the mathematics study form modules in which in addition to lectures and practical works, more attention is paid to the IT software integration in the learning process, as well as individual works for independent studies.

1. Study form modules.

At the Department of Mathematics of LUA has been created a structural scheme of the study modules, where the process is divided into study form modules (Figure 1) has been worked out (Zeidmane**,** Vintere, 2009*)*. The most important in the theme acquisition is supposed THE PROVISION OF INFORMATION which includes previously learned material ("from the background knowledge"), the material from other subjects, necessary for the given theme and new material. For the processing of the given information integration of different forms of study modules (lectures, tasks, ICT environment, and students' individual works) can be used.

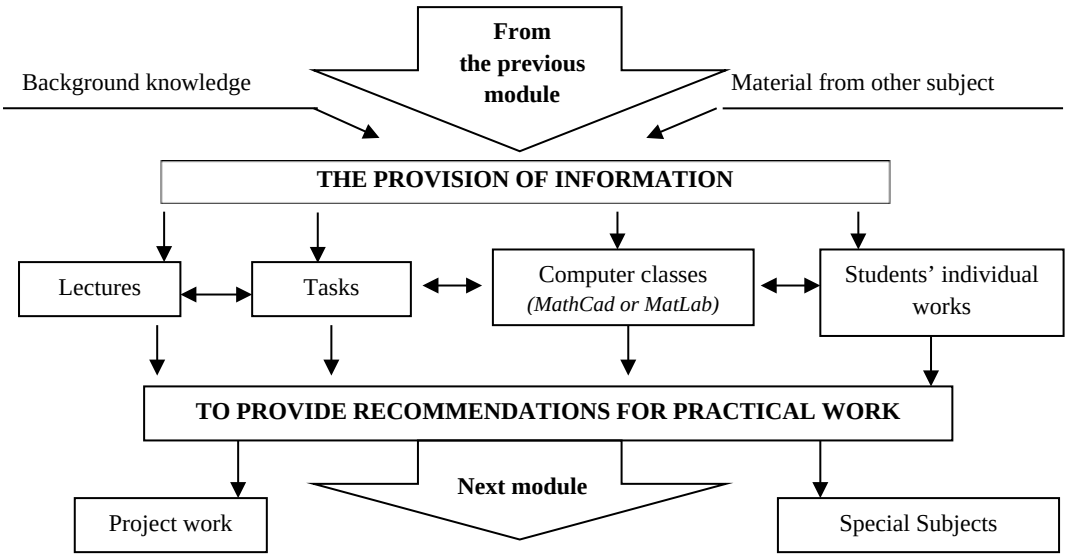

Figure 1. Structural scheme of study form modules

2. Integration of ICT in study process of mathematics

Based on the recent demands of labour market and increasingly rapid entry of IT into our lives it is necessary to review the mathematics learning process and content. The compromise should be found in the study process of Mathematics between:

- the acquisition of the fundamental knowledge;
- acquisition of know-how application of knowledge;
- the use of IT software in the calculations.

Integration of ICT in the study process has two aspects: using e- environment and using IT software. E-learning is one of modern approaches in educations field. The introduction of e-studies in the higher educational establishments does not mean only the creation of data basis which provides access to materials. It also requires the organization of new teaching forms as well as a new way of assessing the acquired level of knowledge. E-learning gives opportunity to follow up every student, his/her abilities, requirements and deliver to him/her only the information he/she wants. In fact, combined teaching is used in the studies – work in the lecture-room is combined with the work on e-learning website (Zeidmane, Paulins, 2012). The education support services must be completed: e-studies take place online, they are accessible in computers using standard software, the student interacts not only with the material but also with the lecturers and other students and the focus is on the wide education vision (Rosenberg, 2001). E-studies are also defined as the usage of the technologies for the selection, development, registration, provision, management, teaching and the support. Thus, e-studies are the process where the person learns on his/her own by using technologies.

The rapid changes in computer technology led to computer algebra systems like MathCad, Matlab, Mathematica and Maple which are used for education of future engineers. Therefore it is very important to integrate any of IT software in mathematics study process. LUA has experience in integration of IT in the study process of mathematics. The acquisition of software MathCad is integrated in the study process accounting for 0.5 of contact lessons per week (Computer classes) (Figure 2).

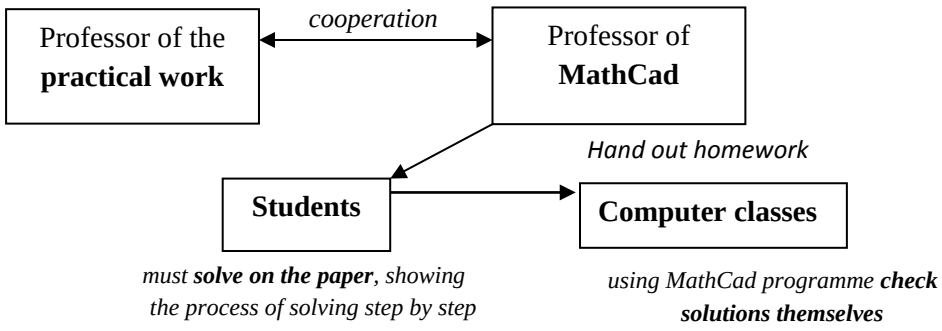

Figure 2. Integration of program MathCad in the mathematics study process at LUA

Professor of the MathCad cooperating with the professor of the practical work, hand out individual work to students. Students must solve practical tasks in mathematics on the paper, showing the process of solving step by step. One or two weeks later in the computer classes' students check solutions themselves using MathCad programme. The results are very positive because: 1) students enjoy comparing the results of their individual tasks with the results obtained with MathCad , the motivation to solve more mathematic problems is ~~in~~ increasing and students are interested in solving several variants; 2) professor spend less time for checking individual works; 3) the final tests show the improved scores.

Results and discussion

1. Investigation of experience in preparing and assigning the individual tasks in mathematics at LUA

Investigating the current situation at the LUA Department of Mathematics can be concluded that in all mathematics courses individual works are being assigned for students. Even more, individual works are one of the conditions to pass the mathematics course. As in every mathematics course there are 5-6 individual works (depending of the course credit points), that consists of several tasks and every students has its own variant, then all LUA mathematics teachers spend a lot of time every year to prepare individual works.

There are many practices of preparation of individual works among LUA mathematics teachers. The most popular individual work preparation types are:

- To use ready individual works with many variants from textbooks.
- To make their own individual work compilations from different literature sources.
- To create a new individual work tasks every year.

There also are different practices in the way how individual works are handed out to students:

- If individual works are stored electronically (as Microsoft Word, Portable Document Format - pdf document), then group of individual works file usually is sent to students over e-mail.
- If individual works are prepared on a paper then one copy of individual work is handed out to a whole group of students (everyone should write down their individual work task).
- Some teachers prepare and hand out individual work for every student in paper form.
- In resent time approximately 50 variants about each topic is created and placed in mathematics e-courses and each student have his own variant.

These experiences have a lot of weaknesses.

Concerning to preparation of individual works:

- Teachers spend a lot of time on updating, changing and creating new individual work every year.
- Using ready individual works from textbooks or even their individual work compilation every year, a plagiarism issue can arise among students –individual work that is handed in is solved in previous years by other students.

Concerning to ways of hand out:

- If individual work is sent to student e-mail, then very often students argue that somehow they have not received these teacher e-mails. All variants of individual work tasks are available for all students that also can enable a plagiarism issue.
- If one individual work copy is being handed out for a group then usually students have excuses for not writing down his individual work or even losing their copy. Writing down their tasks, students make mistakes.
- Preparing an individual copy for every student, teachers spent a lot of time for writing, copying and handing out a copy for every student. And if student has missed this lecture, when individual work is handed out, then student gets no individual work.

2. Development of individual tasks database in e- environment

One of the results of the ERDF project "Cross-border network for adapting mathematical competences in the socio-economic development (MatNet)" was preparation of recommendations for improvements of mathematics study programs. According to these recommendations, group of teachers from Departments of Mathematics of LUA and SU developed database of practical mathematical tasks from all topics of mathematics. Teachers divided mathematical tasks according to the different methods of solving and different levels of difficulty. Such a database was created in the Department of Mathematics at LUA for three levels of Mathematics courses- engineering level, pre- engineering level and mathematics for social sciences.

3. Possibilities of Random Assignment Generator

Summarizing challenges and everyday practice in mathematics individual work assignments at LUA, authors concluded that there should be created a system for individual work assignment, corresponding to certain requirements: 1) unique variants of individual work should be assigned for every student without spending a lot of time; 2) easy individual work assignment process for teachers and students; 3) improved mathematics teacher work efficiency.

Individual work assignment system called Random Assignment Generator (RAG) was created as Course Management System Moodle Quiz activity with certain choice of question types and options together with specially established and categorized individual work database (question bank). (Moodle: Learning Management System, 2013).

Moodle Open Source Course Management System (CMS), also known as a Learning Management System (LMS) or a Virtual Learning Environment (VLE) (Moodle: Learning Management System,

2013) was chosen for the implementation of the RAG, as it met all the requirements. LUA actively uses Moodle in study process because LUA encourage blended learning approach in study process, blending full-time studies with e-learning and new system development for individual work assignments would be ineffective in many ways – cost, time and usability. The Quiz activity module allows teacher to design and build quizzes consisting of a large variety of Question types, including multiple choice, true – false, and short answer questions. These questions are kept in the Question bank and can be re-used in different quizzes.

For RAG authors used Moodle Question bank, where all individual work mathematical tasks are categorized by mathematics topic and solution type. For example, category – Applications of Integrals and subcategories –Area of Plane Region, Volume of Rotation, Length of a Curve etc. (Figure 3). For input of mathematics tasks is chosen Moodle Question type Essay and TeX language. TeX is a typesetting system, popular for typeset mathematical formulae (Knuth, 1984). Random question option is chosen to create Quiz activity for student individual work with unique variants.

Figure 3. Screenshot of student individual work using Random Assignment Generator

RAG implementation into mathematics study process, is a solution for previously listed individual work assignment problems:

- Individual work is accessible for students in Moodle system at any time.
- Individual work tasks are generated randomly for every student.
- Mathematics tasks are easy to create in Moodle, because Moodle supports TeX language.
- Tasks are easy to use, easy to add to e-course and easy to update and change in the Moodle environment. Teachers can quickly add new tasks to the individual work.
- Individual works are easy to import and export from one Moodle e-course to another.
- Teacher gets access to individual work variant that student receives in Moodle.
- RAG allows creating different groups of tasks, so that all teachers can share their individual work compilations.
- Students can generate additional individual work variants and practice more when learning for exam or mid-semester tests.

4. Step by step examples of practical mathematics problem solutions with MathCad

Nowadays IT software is used for calculations and problem solving. It means that students need skills to use IT software as well as knowledge of mathematics, to understand software operations. As mentioned above it is very important to integrate any of IT software in mathematics study process. For bachelor level studies software MathCad is used because at LUA there are only 0.5 computer classes hours per week, this program is easy for students to acquire and with graphical interface (Maxfield, 2009). Although basics of MathCad are acquired in the beginning of classes, solution process of different tasks of each mathematics topic have its own specifics. Examples of practical mathematical problem solutions in MathCad step by step are created and made available to the students through an e-environment. Students can solve tasks in the MathCad independently or with teacher assistance coming to computer classes.

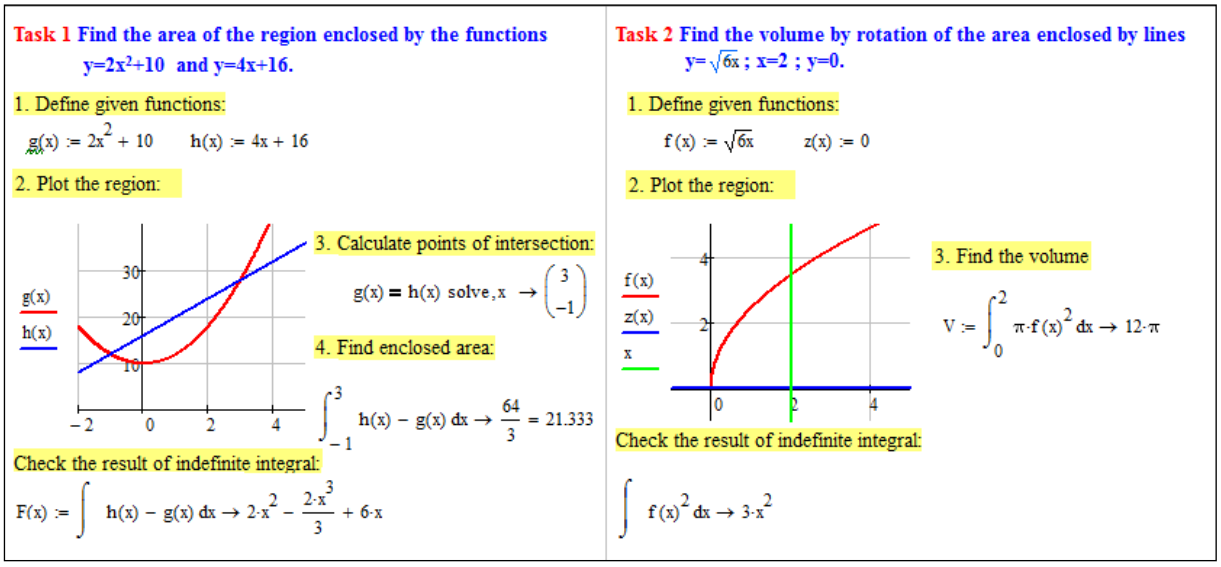

Figure 4. Example of students' individual work about topic "Applications of integral" using RAG.

For example, one of the individual works is about the mathematics topic – application of integrals. In most LUA mathematics study courses are included applications of definite integral such as calculation area of plane region, volume of rotation region, length of a curve. Practical tasks discussed in RAG example (Figure 3) can be solved with MathCad step by step (Figure 4). In both tasks – area of plane region and volume of rotation, solutions starts with definition of given functions, then students can plot the graphs of the given functions to better understand how the region looks and then follows the calculation using area or volume regularities. Correct answer in MathCad can be obtained directly with the MathCad function definite integral or step by step – indefinite integral and then calculation of boundaries.

To ascertain the students' view on provided support in the e-environment for independent studies, 234 students of LUA engineering specialties were surveyed. Relating to the assignment of the individual works in e – environment, then 83.2% of students are satisfied with this new practice, because they don't need to write down practical tasks anymore and they are accessible anywhere where is available Internet and computer, tablet or smartphone. Still, 10.3% of surveyed students are neutral or not sure, but 6.5% don't support this practice (Figure 5). Most on the neutral and dissatisfied students noted that they don't have necessary technologies at their home place or dormitories, and that they have problems using the technologies and e-environment.

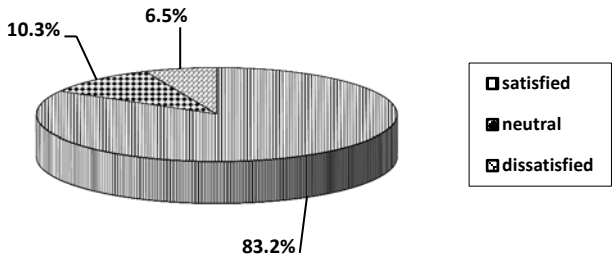

Figure 5. Students'opinion about assignment of the individual work in e-environment

Relating to opportunities to learn mathematical problem solving in MathCad independently, the survey results show that 7.1% answered that they were able to find a solution to the task of Mathcad before computer classes, 12.2% - were able to find a solution to the task of MathCad before computer classes only with help of other colleagues, 46.8% - were able to solve some of the tasks in MathCad before computer classes depending on the difficulty of mathematical topic and 33.9% - were not able to solve the MathCad before computer classes. (Figure 6).

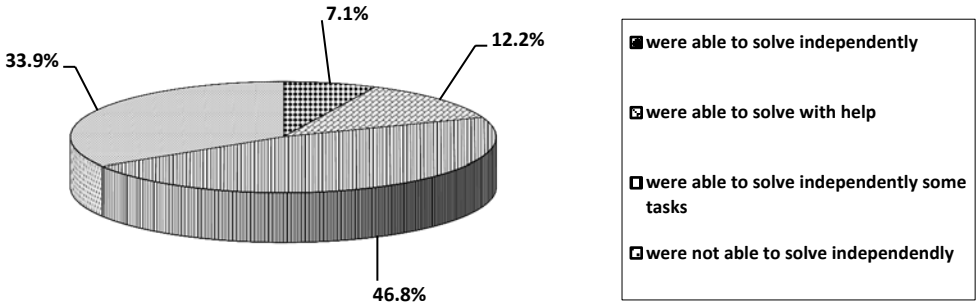

Figure 6. Students'ability to solve practical mathematical tasks in MathCad independently before computer classes.

Student survey showed that often the task solution examples in Mathcad helped to solve the independent work step by step, because 1) the results were comparable 2) solution process of the example in MathCad is similar with the practical task solution on paper.

Conclusions

- Investigating the current situation in the Department of Mathematics at LUA can be concluded that there are many practices of preparation of individual works and in way how the individual works handed out to students. These experiences have a lot of weaknesses: if teachers updating, changing and creating new individual works every year, they spend much time; if is using ready individual works from textbooks the individual works compilation every year, a plagiarism issue can arise among students.
- Solution of this problem at first was creation of common database of practical tasks in mathematics and the second applying the program for generation different variants. Some adjustment of Moodle system should be made in addition, that would allow creating test question without an answer window. Student input is not necessary for higher mathematics tasks, as the right answer is as important, as the solution - chain of logical judgments.
- IT program Random Assignment Generator provides different variants of individual works on specific topics for each student that are not repeated year after year in the mathematics courses. E-environment usage solves the hand out problem.
- Many students agree that the creation of the solution examples with MathCad in mathematics and their accessibility in e-environment support the acquisition of MathCad independently and give solution of individual works step by step.

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Sport pedagogy

Students' dietary habits

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Abstract: The World Health Organization (WHO) particularly highlights the actions that need to be taken in order to draw attention to health promoting effects, with particular emphasis on healthy eating and physical activity. The aim of the research is to define University students` dietary habits. Materials and methods**.** The questionnaire inquired about the dietary habits of students including healthy and unhealthy food variations (from previous day's food intake). For data analysis the traditional programme SPSS 16.0 was employed. The participants of the research: 158 full-time and 52 part-time students of Liepaja University and Riga Stradins University Branch of Liepaja. The results. According to self-assessment of students, 31 % full-time students and 49.9% part-time students have good nutrition on daily basis. But at the same time, our research showed that 43. 6% full-time students and 25 % part-time students have bad dietary habits, 44.9 % full-time students and 51.9% part-time students satisfactory dietary habits, but good nutrition habits have only 11,4% full-time students and 23.1% part-time students. There were no students with very good dietary habits. 39.9% of full-time and 28.8% of part-time students had intentions to use healthier diet in the future.

Key words: students, dietary habits, healthy/unhealthy diet

Introduction

Between the top ten risk factors stated by WHO (World Health Organization, 2009)obesity ranks third, lack of physical activities (hypodynamia) – forth, but insufficient intake of fruit and vegetables - eighth. Thus, WHO regularly follows and elaborates new activity programmes and provides suggestions, emphasizing physical activities and the value of healthy diet in order to maintain one's health.

The National Development plan of Latvia (for 2014 – 2020) describes a course of action called "Healthy and fit for work person" highlighting the main health risks in Europe, such as smoking, abuse of alcohol, lack of physical activities and a poor diet, which result in significant health care and social costs. Therefore, one of the priorities is to establish healthy and active lifestyle habits in the society by strengthening the health promotion networks: (a) promotion of healthy diet, active lifestyle and spiritual health, (b) development of children and youth sports, and popular sport activities, (c) inclusion of health education in the school curricula, (d) prevention of substances and processes that can create dependencies (Latvijas nacionālais…, 2012).

The previously mentioned documents and facts prove the topicality of the healthy eating, as healthy dietary habits normalize weight, blood pressure, cholesterol, cardiovascular functioning, and help prevent Type 2 diabetes and different forms of cancer (for example, of organs related to digestive system functions), and finally, the healthy dietary habits improve a person's well-being in general. Therefore, it is important to promote and strengthen healthy dietary habits also for the students, as the EU statistical data (Eurostat, 2012) prove that 35.1 % of students of Latvia's higher educational establishments have increased body weight, but 14.8 % of students can be classified as obese. The educational monitoring in order to promote healthy lifestyle and availability of healthy nutrition in the higher educational establishments would possibly improve the dietary habits of students and hence their overall health. The respondents involved in this research are students of Liepaja University and Riga Stradins University branch of Liepaja. The goal of the research: to identify the dietary habits of students.

Methodology

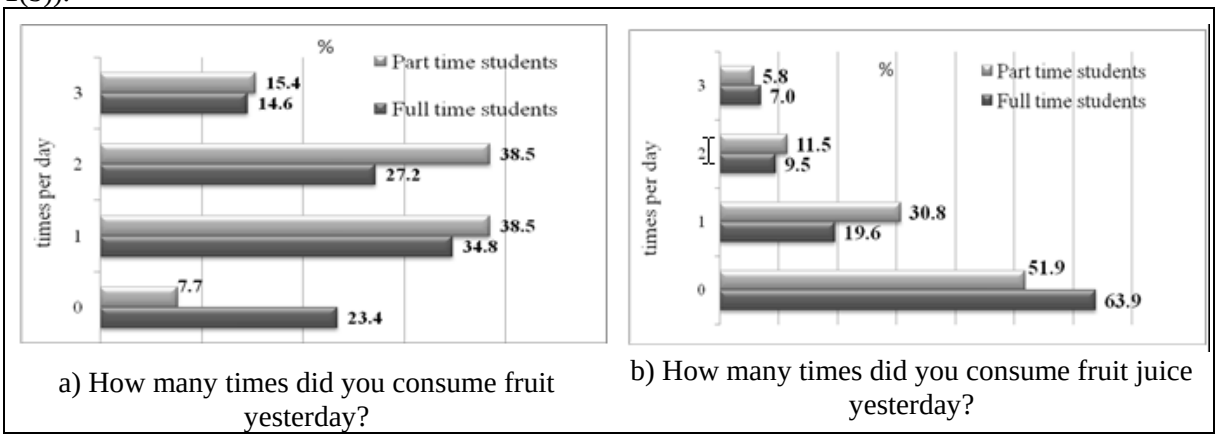
The dietary habits of students were assessed employing the survey method, and the questions were composed following the recommendations of USA National College Health Risk Behaviour Survey (Centers for Disease ..., 1995). Similar survey methods have also employed by K. Silliman, K.Rodas-Fortier and M. Neyman (2004); A.Al-Rethaiaa, A. Fahmy, N.Al-Shwaiya (2010). Thus, the respondents had to recall what food they had consumed in the previous day (together 16 questions). For analysis of survey results, in this paper, we employed 10 questions, which substantially show the dietary habits of students. These ten questions are the following: 1. How many times did you consume fruit yesterday? 2. How many times did you consume fruit juice yesterday? 3. How many times did you consume green salad yesterday? 4. How many times did you consume thermally prepared vegetables yesterday? 5. How many times did you consume drinks or food containing calcium (milk, cottage cheese, etc.) yesterday? 6. How many times did you consume hamburgers, hot dogs, frankfurters, (etc.) yesterday? 7. How many times did you consume potato chips or fries yesterday? 8. How many times did you consume sweets, pastries, cakes, (etc.) yesterday? 9. How many times did you eat in the fast-food establishments (McDonalds, etc.) yesterday? 10. How many times did you drink carbonated or soda drinks yesterday? In this block each of the questions had 4 possible answers (none, once, twice, three or more times), and rating scale (from -3 to +3) was created according to the students' responses. The maximal amount of points (15 to 10) indicate very good dietary habits, 9 - 5 – good dietary habits, 4 - 1 – satisfactory dietary habits, 0 - '-15' – unsatisfactory dietary habits. Besides the above mentioned questions, we also identified dietary habits of students according to their self-assessment and their intentions to form healthier dietary habits. The results of this study will be further developed and analysed in dissertation thesis on healthy lifestyle habits of students.

The participants of the research: 158 full-time first year students (age 19-26; 20, 4 ± 3,5) and 52 part-time first year students (age 20-34, 28,5 ±7.9) of Liepaja University and Riga Stradins University Branch of Liepaja, from them 191 women and 19 men.

Results and discussion

The following data were obtained summarizing ten survey questions. In the previous day, 14.6 % full-time and 15.4 % part-time students had consumed fruit 3 times a day, 27.2 % full-time and 38.5 % part-time students twice a day, but once a day – 34.8 % full-time and 38.5 % part-time students. In the previous day fruit were not part of the diet for 23.4% full-time and 7.7 % part-time students (Figure 1(a)).

In the previous day fruit juice has been part of the diet for 36.1% full-time and 48.1% part-time students, but 63.9 full-time and 51.9 % part-time students did not consume any fruit juice (Figure 1(b)).



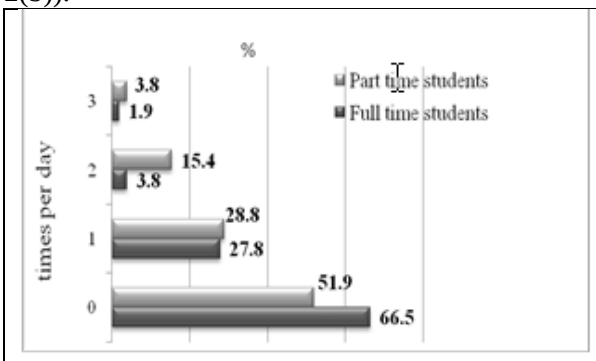
a) How many times did you consume fruit yesterday?

b) How many times did you consume fruit juice yesterday?

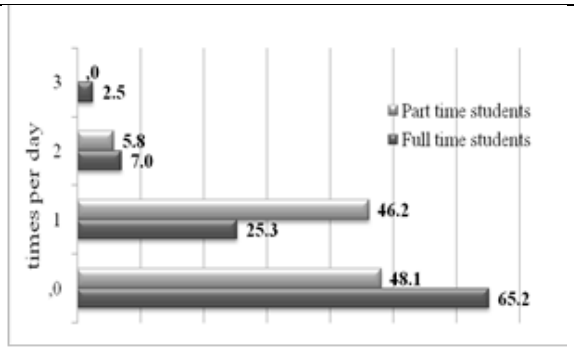
Figure 1. Responses about use of fruit and fruit juice in the previous day's diet

Green salad has not been part of previous day's diet for 66.5 % full-time and 51.9 % part-time students; 27.8 % full-time and 28.8 % part-time students have consumed green salad once, but 5.7 % full-time and 19.2 % part-time students – twice or three times (Figure 2 (a)).

Thermally prepared vegetables have not been part of previous day's diet for 65.2 % full-time and 48.1 % part-time students; 25.3 % full-time and 46.2 % part-time students have consumed thermally prepared vegetables once, but 9.5 % full-time and 5.8 % part-time students twice or 3 times (Figure 2(b)).



a) How many times did you consume green salad yesterday?

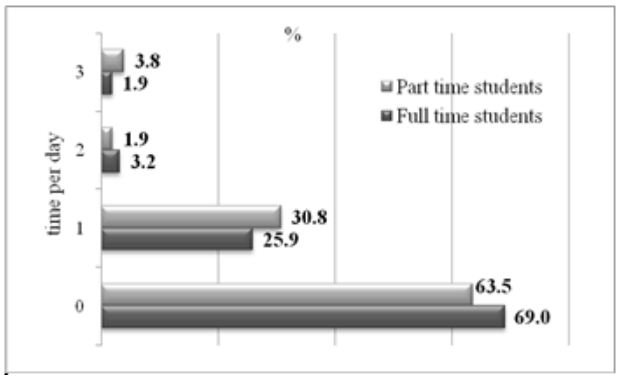


b) How many times did you consume thermally prepared vegetables yesterday?

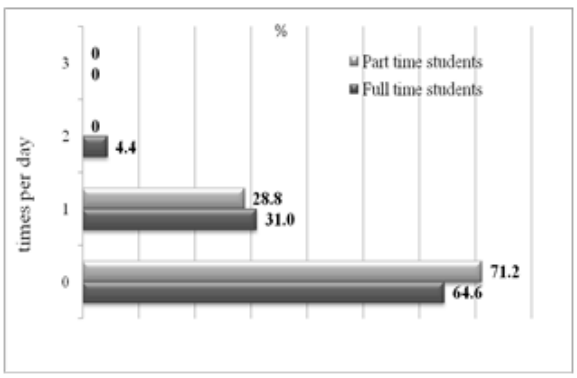
Figure 2. Responses about use of green salad and thermally prepared vegetables in the previous day's diet

Calcium-containing products (milk, cottage cheese, etc.) have been part of the previous day's diet for 25.9 % full-time and 30.8 % part-time students once, but twice or 3 times – for 5.1 % full-time and 5.7 % part-time students. 69 % full-time and 63.5 % part-time students have not used any calcium-containing products in the previous day's diet (Figure 3(a)).

Hamburgers, hot dogs and frankfurters (etc.) have been part of the previous day's diet for 31 % full-time and 28.8 % part-time students once, but more than once – for 4.4 % full-time students (Figure 3(b)).



a) How many times did you consume calcium-containing products (milk, cottage cheese, etc.) yesterday?

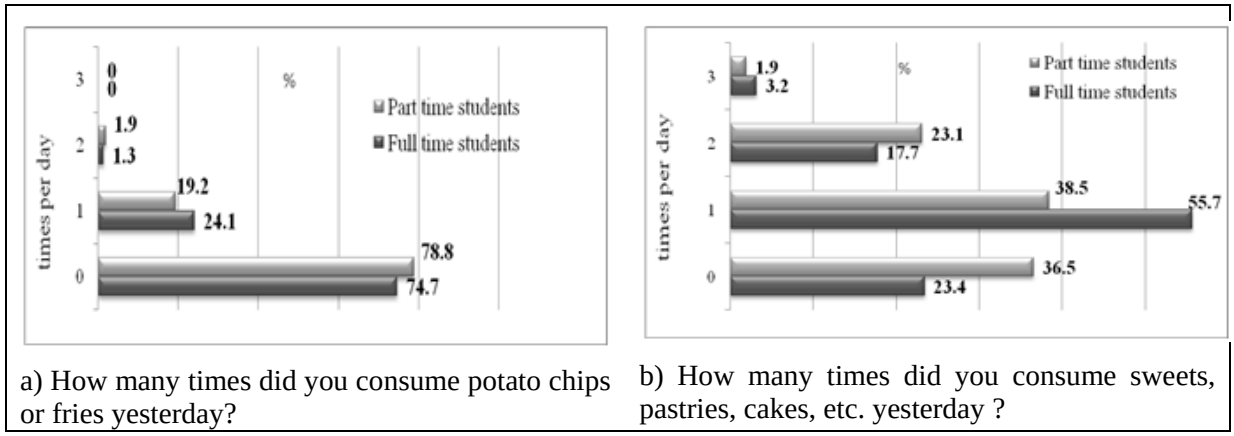


b) How many times did you consume hamburgers, hot dogs or frankfurters (etc.) yesterday?

Figure 3. Responses about use of calcium-containing products and hamburgers or similar sub-products in the previous day's diet

In the previous day, 74.7 % full-time and 78.8 part-time students have not consumed any potato chips or fries; 24.1 % full-time and 19.2 % part-time students have consumed these products once, but twice – only 1.3 % full-time and 1.9 part-time students (Figure 4).

In the previous day, 55.7 % full-time and 38.5 % part-time students have consumed sweets, pastries, cakes and similar products once, twice – 17.7 % full-time and 23.1 % part-time students, but 3 times a day – 3.2 % full-time and 1.9 % part-time students. 23. 4 % full-time and 36.5 % part-time students have not had any sweets or pastries as part of the previous day's diet (Figure 4).



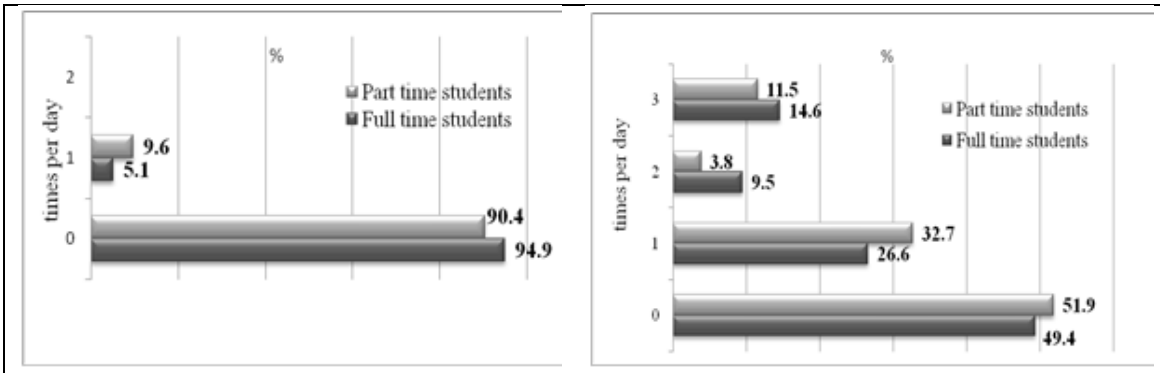
a) How many times did you consume potato chips or fries yesterday?

b) How many times did you consume sweets, pastries, cakes, etc. yesterday ?

Figure 4. Responses about use of potato chips and fries and sweets and pastries in the previous day's diet

In the previous day, 94.9 % full-time and 90.4 % part-time students have not eaten in fast-food establishments such as McDonalds and etc. (Figure 5(a)).

In the previous day 26.6 % full-time and 32.7 % part-time students have consumed flavored, carbonated or soda drinks (lemonade, kvass, mineral water, etc.) once; 9.5 % full-time and 3.8 % part-time students – twice, but 14.6 % full-time and 11.5 % part-time students – three times a day. These drinks haven't been used by 49.4 % full-time and 52.9 % part-time students (Figure 5(b)).



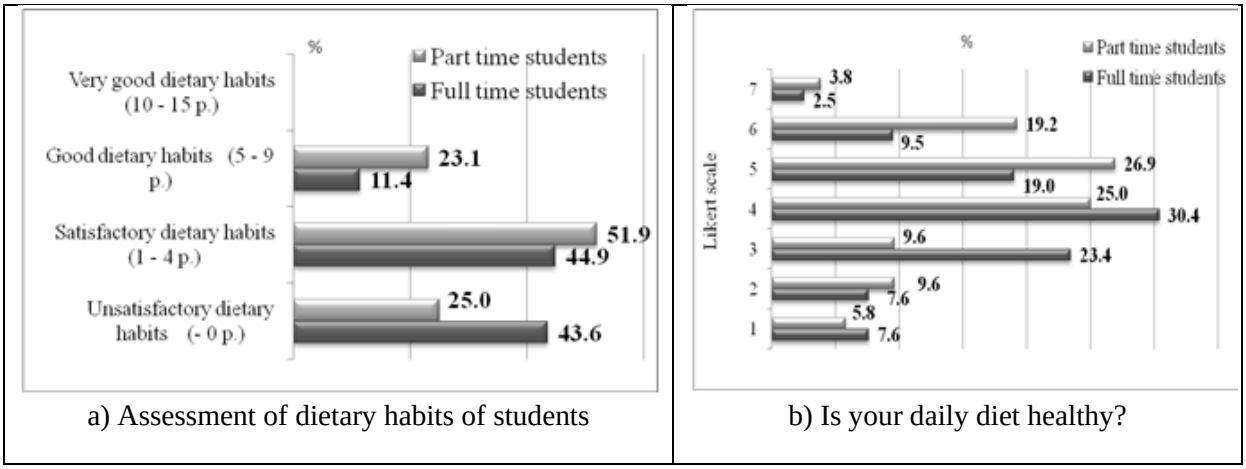
a) How many times did you eat in fast-food establishments (McDonalds and etc.) yesterday?

b) How many times did you drink flavored, carbonated or soda drinks (lemonade, kvass, mineral water, and etc.) yesterday?

Figure 5. Responses about use of fast-food and carbonated drinks in the previous day's diet

The criteria used for summarizing and assessing the obtained survey data were the following: very good dietary habits (10 to 15 points), good dietary habits (5 – 9 p.); satisfactory dietary habits (1 – 4 p.) and unsatisfactory dietary habits (minus to 0p.). The obtained results showed that the dietary habits of 43, 6 % full-time and 25 % part-time students are unsatisfactory, 44.9 % full-time and 51.9 % part-time students – satisfactory, 11.4 % full-time and 23,1 % part-time students have good dietary habits, but very good dietary habits were not identified in neither of student groups (Figure 6(a)). According to self-evaluation of students, 31 % full-time and 49.9 % part-time students are using

healthy diet, 30.4 % full-time and 25 % part-time students have a neutral opinion (they neither agree nor disagree), but according to students' opinions, 38.6 % full-time and 25 % part-time students have unhealthy dietary habits (Figure 6(b)). Obtained results show that the self-evaluation of students about their unhealthy dietary habits coincide with the dietary assessment, but 19.4 % full-time and 26.8 % part-time students overvalue the dietary habits which they consider as good.



a) Assessment of dietary habits of students b) Is your daily diet healthy?

Figure 6. Assessment of dietary habits of students and self-evaluation of healthy dietary habits

39.9 % full-time and 28.8 % part-time students have intention to change their dietary habits, and generally it corresponds with the frequency of unhealthy dietary habits of students. 41.1 % full-time and 30.8 % part-time students do not know if they are going to change their dietary habits, but 19 % full-time and 40.4 % part-time students do not have intention to change them, which to some extent corresponds with the views of students who say that their dietary habits are already healthy (Figure 7).

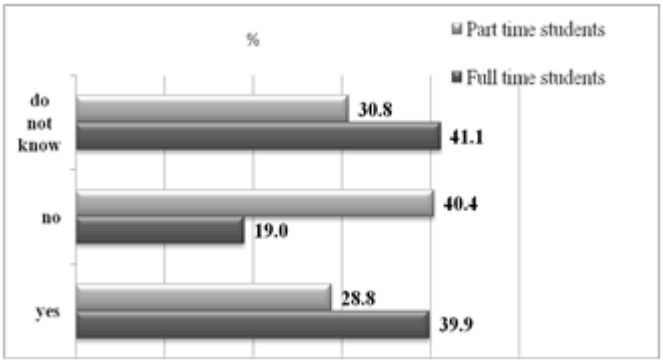


Figure 7. Do you have intention to change your existing dietary habits?

Analysing obtained quantitative data about existing dietary habits of students, it is possible to compare with data of some other similar research studies conducted in Latvia. For example, the study of Latvia FINBALT (Pudule, Villeruša , 2010), which was researching habits of inhabitants, recorded the following dietary habits: 6.3% of respondents consume thermally prepared vegetables every day (in our research – 34.8 % full-time and 52 % part-time students); 31.8% of men and 30.5% of women eat pastries three and more times a week, but sweets and candies – 27.7% of men and 26.4% of women (in our research 76.6 % full-time and 62.9 % part-time students used sweets and pastries in previous day's diet). Flavoured and carbonated drinks, Coca-Cola or lemonade are part of daily diet of 15.2% men and 8.0% women (in our research they are 50.7 % full-time and 48 % part-time students).

Latvia FINBALT research (Pudule, Villeruša , 2010) shows also the willingness of inhabitants to change their dietary habits for health reasons. 28.8% of respondents have increased the intake of vegetables in their daily diet, 19.6% of respondents have reduced the amount of fat in their food and 18.1% of respondents use less sugar in their diet. Also our research results show the intention of students to change their dietary habits (39.9 % full-time and 28.8 % part-time students). FINBALT research (Pudule, Villeruša , 2010) shows that women change their eating habits more often than men,

and so do people with higher level of education. This fact is confirmed also by results of our research – all participants are in the process of obtaining the higher education, and 90 % of them are women.

According to Eurostat data of year 2008 (Eurostat European…, 2012), Latvia has good results in comparison to other European countries (respondents – students and people with higher education, age groups 15- 24 and 25 - 34). For example, in Latvia 37.9% of respondents consume fruit at least twice a day (better results are only for France and Rumania), but vegetables – 27.2 % of respondents (in France – 37.5 %). But, according to Eurostat data, in general only 15.2 % of Latvia's inhabitants consume vegetables twice a day on the daily basis, but fruit – 18.2 %, thus showing a mediocre result in the European ranking.

Conclusions

This study proves that dietary habits of both full-time and part-time students should be improved, as the research indicated lack of greens and calcium-containing products in the daily diet, as well as excessive use of carbonated and sweetened drinks and confectionery.

In students' self-assessment, healthy dietary habits are sometimes overvalued in comparison with obtained research data, but the number of students who think that they have unhealthy eating habits corresponds to the research results, which proved unsatisfactory dietary habits.

Summarizing and evaluating the obtained research data on dietary habits of students, it is possible to conclude that part-time students have healthier dietary habits than full-time students.

The research results also indicate that in the higher educational establishments it is important to create educational and more user-friendly environment where healthy food is accessible, and form 'healthy eating' support groups in order to create interest and deeper understanding in students about the impact of healthy diet to the human health, and at the same time promoting formation of healthy dietary habits.

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