Rural Environment. Education. Personality. (REEP)

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Devoted to 150 Anniversary of
Latvia University of Agriculture
2013
Jelgava

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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 E nvironment. E ducation. Personality (REEP).** Authors of the articles are from Czech Republic, Estonia, Germany, Latvia, Lithuania, Malta, México, Finland, Poland, Turkey. Totally 21 education 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, career development and vocational education.

Thematic groups of the articles:

- Ecology of education.
- Life quality in the context of home environment, home economics, household, consumer science.
- Development of vocational education and career.
- Education for getting competence.
- Psychology.
- Didactics of engineering sciences, usage of IT.

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** comprises themes on pedagogues' efforts and contribution relating to rural school as local educational environment in the evolutionary, structural and functional aspects in the context of contradictions, new tendencies, yet unsolved problems and on-going processes in the global educational environment. The results of research indicate that, in order to provide for sustainable development of schools themselves, rural schools expand their target audience, formal and informal education and training offers, expand the range of their functions by taking additional functions, thus becoming lifelong learning environment providers for the whole rural community, where must be succession, systemic approach, fairly equivalent possibilities in the aspect of education accessibility.

As the world continues to run out of clean air, water and space, it will be all the people who experience the consequences at a global scale. The model "Eco-Sociological Model" developed from N.Stanger as an education model for ecological literacy at schools is described and it contributes to understanding of ecological influencers/ecosystems (nano, micro, meso, exo, macro, chrono) surrounding humans growing up within social environments.

Analyzing the rural reality of developing countries in general, and Mexico in particular, specifies the elements that must give way to the new profile, discussing their integration as citizens of a globalized and multicultural society, in a world becoming more complex, and it operates under multiple trends and directions what are described in this section.

Researchers emphasize that the 21st century tendency in the educational process is mainly based on rational discourse; students have problems to look into themselves, their thinking from the aspects of interpretation, association as well as imagination and fantasy. Both the pedagogue and student need

the language of art as a tool for imagination in order to harmonise the intellectual and emotional development of personality. A theoretically well-grounded didactic model for facilitating sustainability of the Latvian regional traditional culture in education is based on the conceptual guidelines of an individual's socio-ecological development and it is foreseen to be used in a primary school.

Articles on **life quality in the context of home environment** discuss aspects of family non–material capital that positively influence educational competitiveness of economically deprived students in Latvia. Latvia's economics has been influenced by considerable macroeconomic impacts during the recent years. Together with the change of the total economic paradigm it is required to change the sector policies as well, so that they would match the modern, up-to-date and actual scientific methods developed by economy theoreticians and approbated in practice for many times. Evaluation of the impact of socio-economic factors on the long-term development of the Latvian economy is described.

The current situation in Latvia is characterized by a lack of understanding of the need to support families of children with special needs which might compensate the impact of disability on family's quality of life. The multidimensional concept of quality of life is characterized by the available consumption level, variety and quality of social services, a chance to have an education, to live a long and prosperous life, and to take part into social and political activities.

Researchers reveal the essence of handiwork, their significance and humane values in the development of personality that are found in folk pedagogics. Compositions of folklore – folk songs, traditions, habits, beliefs, ethnographic materials, archaeological findings, written evidences – have become the sources of folk pedagogics.

The authors also valuate the importance of sustainable production and consumption. Given the emerging sustainability concerns, consumers are being challenged to reframe this quality valuation to consider both internalities of the food, such as flavour and appearance, as well as externalities of production and consumption, such as harm to human health, socioeconomic impact, as well as environmental damage, promotion of animal welfare, biodiversity and cultural food traditions.

Development of vocational education and career are discussed in several articles. The quality of career guidance for youth with social risk status is determined by the professional competence of a career counsellor and by the competence of a school teacher or class master. It is not just counselling or providing information to the client according to his or her individual needs, but also involves cooperation with various institutions responsible for human resource development; it also requires managerial work experience, skills for using information technologies and emotional intelligence. Nowadays, on the one hand, career counselling has to be more dynamic, flexible, imaginative and creative, but on the other hand it has to solve more complicated and difficult problems in relation to career perspectives throughout the lifetime. The authors share their experiences in usage of different career counselling methods and how to deal with issue of practical teaching at secondary vocational school.

Constructivism and its dynamic nature from alternative approach in many parts of the world now become the traditional approach for individual career development and counselling, emphasizing his unique learning experience that is based on self-organizational activities for his goals of future life setting and achieving them. There is theoretically evaluated and justified constructivist approach to the dialogical career counselling in vocational secondary schools.

Researchers try to find out the way how the long-term unemployed social benefit receivers perceive their career development influences to create a suitable career guidance model for a target group in future.

The development of women's career is more complicated than that of men's career, as several internal and external barriers exist, including family duties, the diversity of roles of life, employment, the surrounding environment, traditions, and stereotypes which both complicate and constraint the choice and growth of women's career. A career is defined as a sequence of employment-related positions, roles, activities, and experiences which unify a job, a career, and a profession, with the situation of

being unemployed being included as well. The research results on the factors determining successful women's careers are also included.

Researchers study the theories of motivation for the motivation of unemployed. There are described the theories of motivation which can be used for the unemployed to obtain their education according to the economical situation. Various new forms of employment are being formed considering changing circumstances. The contradiction between the recognition of the value of education and the lack of motivation for the unemployed to educate themselves are becoming increasingly topical among the unemployed.

Education for getting competence focuses on competence based education including citizenship education for getting competence in higher education. Citizenship education includes the nature and practices of participation in democracy, the duties, responsibilities and rights of individuals as citizens; and the value to individuals and society of community activity. Preparing students for citizenship involves developing relevant knowledge and understanding as well as encouraging the formation of positive attitudes towards being a citizen. Along with the formation of civil society, issues concerning the social, legal, and spiritual life of student population have come to the foreground. There can be observed new features of behavioural culture and standards of thinking, readiness to live in a democratic environment.

Learning and training as a competence acquisition process excited masters' minds for ages. Nowadays world brings new educational challenges. On the one hand, modern technologies open up new possibilities for learners, make learning accessible for anybody anytime and anywhere; on the other hand, humans' society still needs recognize effective educational methods to engage learners and cope with the demand of lifelong learning. Obtaining of new competences requires students to show their respective attitude and willingness to do so. New approach in scaffolding learning, based on development and implementation of engaging ePortfolio systems, by the opinion of authors, may have significant positive impact on further individual training and education developments.

Researchers investigate the relation between the cultural capital and each individual's cultural competence in the contemporary information society. General education process plays a crucial role in developing this relation however the importance of the cultural capital is practically underrated. The cultural capital and its accessibility is the most influential factor in the development of the cultural competence.

There are studies about the influence of volunteering practice in the context of strengthening social cohesion. This requires dealing with different theories and models to describe and explore the nature of volunteering. The results of the research show a correlation between the important things in life and the level of influence in this field, the relevance of civic skills and competences and the role of reflection.

The article emphasizes ideas of the specific character of perceiving a literary work as a work of art and presents problems connected with the vulgarization of literature. The article also reveals and analyses the learners' interests and needs for developing a relevant learning content, the learners' opinions, expressed in the interviews, their reading motivation and their preferences in reading.

Articles about **psychology** analysed the pedagogy students' psychological readiness, the evaluation of which is based on the methodology for the self-evaluation of the readiness for professional activities. The readiness for professional activities is formed of two components – psychological readiness and competence based readiness. The methodological basis for the research is the ecological approach on which there is based the developed conception of pedagogical practice in the school environment.

The epistemic authority is becoming students professional development coordinate. Professor's epistemic authority is related with constructive social dominance and personality development encouraging social power. Professors epistemic authority differences exist between humanitarian, social and exact study area groups. Results showed that in all area student groups there was a tendency to recognize professor as an authority correspondingly to whether he has opinions that students accept, professor is an expert in his knowledge and experience area, professor is objective.

Change of educational and living environment is the most significant change in the life of the first-semester students. There are negative tendencies found in several researches carried out in Latvia, Lithuania, the USA, Russia, they are related to well-being, mental and physical health of the first-semester students. The study of interrelation of hardiness and other psychological issues, which were done within the selection of the first-semester students, assessing correlation of hardiness, mindfulness, and reflexivity are described.

Didactics of engineering sciences and usage of IT becoming increasingly important as the research objects. Authors analysed their experience in integrating IT program MathCad in mathematics study process for bachelor and Matlab for master programmes. The rapid changes in computer technology led to computer algebra systems - besides MathCad and Matlab there are also Wolfram Alpha, Mathematica and Maple which are used for education of future engineers.

The concept of uses virtual measurement tools as a modern means of teaching in the engineers' education, in the context of effectiveness of developing expected engineering skills are described. A short evolution of the measurement system leading towards visual programming is also presented. The researchers describes construction of virtual devices in LabVIEW, methodology of designing measurement systems in this program, as well as features of virtual instruments and their possible uses in laboratory measurements.

Possibility of food allowance optimization model by using MS Solver tool is analyzed in the research. The model is developed by balancing 22 food products and 30 constraints – 8 nutrients and 22 minimum amounts of food products. The new method differs from the applications of linear programming described in the special literature on nutrition science not only with increased nutritional constraints, but also the minimum amount of every product is introduced as constraints, which does not essentially change costs, but provide quality. By modifying minimum amounts of tea, coffee, sugar, spices, it is possible to obtain up to 70% economy from the initial rate.

The author highlights the new situation in teaching, when official (formal) education faces with informal education from different IT media sources and rich flow of information overburdens teachers and students. In the introductory part the author analyses the key features of the new situation and gives a theoretical overview of the use of dialogue in education.

It is known that mobility, lifelong learning, use of the new technological tools and flexible approach to knowledge acquisition requires to search for new methods and to promote the studies program coherence in the European education area. Therefore the development of local and international cooperation in mathematics is topical issue. Cross-border network for adapting mathematical competences in the socio-economic development (Latvia University of Agriculture and Siauliai University) and Baltic network in agrometrics (Latvia University of Agriculture, Estonian University of Life Science and Aleksandras Stulginskis University) were developed. It is important to improve the teaching quality by means of exchanging teachers' experience, to learn about the problems and methods used to solve them in the neighbouring countries.

Teachers, l ecturers, master a nd d octoral st udents h ave co mprised a wide ra nge o f t hemes providing diversity and topicality of the conference.

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

On behalf of the Conference Organizing Committee
Associate professor Vija Dišlere
Institute of Education and Home Economics
of the Faculty of Engineering,
Latvia University of Agriculture

Content

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Ecology of education

CHANGEABILITY AND DIVERSITY OF EDUCATIONAL ENVIRONMENT OF LATVIAN RURAL SCHOOLS IN THE TWENTY FIRST CENTURY

Irēna Katane Dr.paed.
Institute of Education and Home Economics, Latvia University of Agriculture, Latvia
irena.katane@inbox.lv

Abstract: The Latvian rural school as educational environment works in the global (world scale) educational environment, where we can observe self-developing process. Conditions' diversity gives leave turn to concrete case studies, where rural school is researched as local educational environment in the evolutionary, structural and functional aspects in the context of contradictions, new tendencies, yet unsolved problems and ongoing processes which take place in the global outside educational environment. The investigation of the rural school as local educational environment is important and topical in the aspect of continuous (unceasing) educational environment where must be succession, systemic approach, fairly equivalent possibilities in the aspect of education accessibility and extraction, offering and quality of education.

The results of research indicate that, in order to provide for sustainable development of schools themselves, rural communities and areas in general, rural schools expand their target audience, formal and informal education and training offers, expand the range of their functions by taking additional functions, thus becoming lifelong learning environment providers for the whole rural community. The results of research show changes in and diversity of educational environment of rural schools, and it lets at least partially solve the issue of balanced development in the urban– rural dimension in Latvia. There is the great diversity of rural schools' educational environment.

Keywords: changeability, diversity, educational environment, rural schools, sustainable development.

Introduction

The Latvian rural school as educational environment works in the global (world scale) educational environment, where we can observe self-developing process. Conditions' diversity gives leave turn to concrete case studies, where rural school is researched as local educational environment in the evolutionary, structural and functional aspects in the context of contradictions, new tendencies, yet unsolved problems and ongoing processes which take place in the global outside educational environment. Since the end of the 20th century and the beginning of the 21st century Latvian rural schools function under the conditions of constantly changing environment, where the process of self-development is observed. Nowadays, due to the influence of economical, demographical and social crises the problem of the sustainability of a rural school as the educational environment has become urgent.

The results of our theoretical research testify that nowadays research of rural schools is a topical problem of science in many countries, including Australia, Belarus Canada, Finland, Ireland, Russia, Sweden, UK, USA etc. At the international symposium concerning the research on the rural educational environment in Europe there was particularly emphasized that there is a lack of studies on the problems of rural schools. (Hargreaves, 1996; Katane, 2005b; Katane, Laizane, 2012a).

The research on the educational environment of rural schools has become topical also in Latvia due to the fact that the sustainability of the educational environment of rural schools and rural communities is exposed to danger under the conditions of demographic and economic crisis.

The research on the educational environment of rural schools in Latvia is mostly performed at the Institute of Education and Home Economics of the Latvia University of Agriculture (Katane, 2005a; Katane, 2005b; Katane, 2006a; Katane, 2006b; Katane, 2006c; Katane, Laizane, 2009; Katane, Laizane, 2012a; Katane, Laizane, 2012b; Laizane, 2012).

The fact that there is an explicit tendency for the decrease of the number of small rural schools and that it is important to preserve especially rural schools and study the fluctuation of their educational

environment not only in Latvia, but also in other countries is proved by the research performed by several authors (Flora, Spears, Swanson, 2007; Theobald, Nachtigal, 1995; Unruh, Lundt, 1999).

The sustainable development of the society to a great extent is related to the rural community and the sustainable development of its cultural environment. The future existence of the Latvian nation and the awareness of the Latvian identity are impossible without the preservation of rural cultural environment and further development. It is especially important at the present moment, when assessing the consequences of the demographic and economic crisis we look at the future of our nation. The sustainability of rural cultural environment can be ensured, first of all, maintaining and further developing educational environment in rural areas. At present, approximately 30% of Latvia population live in rural areas. Despite the fact that it is almost one third of the population, the historically inherited disbalance and disharmony between the opportunity for education in the two dimensions is persistent in Latvia: 1) the capital and regions; 2) cities and rural areas. The problem of different education offered in the dimension *Riga-regions* is being solved on the level of higher education institutions- along with Riga higher education institutions successfully operate regional higher education institutions that try to maintain equilibrium in the educational environment providing their own educational offer. Unfortunately the problem of educational offer in the *urban and rural* dimension is still current.

To ensure the viability of Latvian rural schools in the contemporary conditions of crises, the changes in the rural educational environment take place not only „top down" but also „bottom up". Schools become self-organizing, self-assessing and self-developing systems of educational environment, that change with an aim to ensure sustainable development for themselves and the whole rural community, and its cultural environment in future.

The *aim* of this article is to analyse and evaluate the results of theoretical and empirical studies within the context of sustainable development of rural schools and rural communities in Latvia.

Methodology

The synergistic and ecological paradigm evolved in the research of educational environment. We support the finding of M.Fullan (Fullan, 1993) that *the basis for successful transformation of education is not only the ability to implement the latest approaches, but rather an ability to overcome rises and falls created by planned and unplanned changes, at the same time growing themselves and developing.*

In our investigation we studied and described a rural school as an *environmental system of education***,** which is a *living system*, whole organism that develops in its ecosystem, functions in the sphere of education based on the maintenance of self-regulation, self-development and balance with the regularities of the changing environment. The theoretic basis of our research were the following basic statements:

- any social system, including the school, is a *natural* organization that functions almost like a biological organism, a living being that is able to self-develop and self-regulate in the influence of internal and external environment factors and whose interrelation with the outer environment is subject to definite correlations (Parsons, 1951; Merton, 1948; Fend, 1991; Miller, 1978; Ray, 1988);
- the *homeostasis (self-regulation) principle* of social systems that helps to *maintain the balance with the outer environment* as well as the *morphogenetic regularities* and *reorientation regularities* of the development of a social system as a living organism on the basis of the feedback with the outer environment; *the social systems are autopoiethic, that is, they continuously renew themselves and are self-referential, that is, they can refer to themselves; the systems have the ability to perceive the difference between the system (itself) and the environment (something else) and the ability to draw consequences* (Buckly, 1967; Gudjons, 1998);
- not every social system is an organization, in turn, an organization is always a system, nevertheless, it differs from a usual system having specific indicators: target oriented, coordinated, self-organizing and self-regulating activities (Пригожин, 1983);

- an *open system, dissipative structure tends to maintain balance with the outer environment;* a viable system is only a system that is open for new information; able to study the processes going on in the surrounding environment, including transformational processes; can learn from the experience of others; ready, on the basis of obtained new information and new experience, to draw conclusions necessary for ensuring its *viability* and *sustainability*, and, on the basis of these conclusions, change continuously (Breidlid, 2004; Haken, Portugali, 1996; Haken, Portugali, 2005; Knyazeva, Kurdyumov, 2001; Prigogine, Nicolis, 1977; Prigogine, Stengers, 1983).

The observations and our research show that since the end of the twentieth century the process of transformation takes place in the educational environment of rural schools in Latvia. A rural school as an educational environment becomes more open for the whole local society, namely, rural community. In order to substantiate these processes, we believe it is essential to provide *the substantiation of the conception of community's education*, emphasising *the significance of the school for the rural community's life and facilitation of its development.* The *concept of community school* became a guarantee for the viability and sustainability of rural schools**:**

- a rural school functions as the centre of the community and serves as a provider of different services, the more effective means it becomes for the maintenance of the community; schools as the centres of community reach their status in two ways, firstly, integrating even more in the community, secondly, widening the educational environment, in order to use all the resources of the community more effectively (Bingler, Quinn, Sullivan, 2003; Miller, 1993; Miller, 1995);
- from the economic perspective a rural school is the main employer in rural areas, where both teaching and technical staff are employed; effective relationships between the school and the community help people to pool the local resources, which is necessary and important for the improvement of school's environment (Agbo, 2007; Harmon, Schafft, 2009; Hobbs, 1988);
- the well-functioning rural schools increase the social integration of the community within the environment, securing the identity of local people and the importance of realizing a mutual task; *community rural school* operates as a centre for different community events with an aim to involve people in various civic and community matters; they also provide premises that facilitate the getting together of community inhabitants in order to participate in physical activities, stage theatre plays, organize the meetings of the board of the school; the directors of rural schools must have a whole vision about the creation of mutually beneficial process of cooperation between the school and the community; especially rural schools serve as a symbol of community's autonomy, viability and identity (Budge, 2006; Harmon, Schafft, 2009; Minzey, 1976).

Since 2000 the theoretical and empirical research of the rural educational environment has been performed in the Institute of Education and Home Economics at Latvia University of Agriculture. Three stages of the research can be defined: 1) work on the basis of ecological approach in the research of education, the creation of theoretic basis for the research of rural schools' educational environment, empirical research on the changeability of the rural schools' environment (2000-2005) (Katane, 2005a; 2005b; 2006a; 2006b; 2006c); 2) the completion of methodological basis for the research (2005-2009) (Katane, 2007; Katane, 2009a; Katane, 2009b); 3) empirical research on the changeability of the rural schools' educational environment (2008-2012), which was based on the results of the research performed in the previous stages and served as a continuation for the commenced research (Katane, Laizāne, 2009; Katane, Laizāne, 2012a; Katane, Laizāne, 2012b; Laizāne, 2012).

The basis for the first empirical research (the first stage of the research): 277 rural schools, including 33 rural primary schools which participated in the internal investigation of the educational environment. The basis for the second empirical research (the third stage of the research): 60 rural schools, including 31 rural primary and secondary school which participated in the internal investigation of the educational environment. Schools of both empirical research bases represented all regions of Latvia.

During the first research of the rural schools' educational environment a method of assessment was developed, important factor being a specifically developed system of assessment indicators (altogether 128 indicators), which represented several levels of schools' educational environment and environmental contexts. In the second research the system of indicators for the assessment of schools' educational environment was modified (shortened), through analysis and evaluation retaining indicators that were the most essential and conforming to the contemporary conditions for the assessment of schools' educational environment (altogether 50 indicators).

During both empirical research stages the changes in the schools' educational environment were investigated during the respective periods (2000-2005; 2008-2012).

Results and discussion

The results of the research lets pinpoint several tendencies in the development of rural schools' educational environment, which were equally conspicuous in the environment of schools-research basis for the first research, as well as in the environment of the schools- research basis for the second research. Here are the most important of them.

- In order to ensure their own and rural community's sustainability, the rural schools broaden their target audience, including in its environment also pre-school children and adults, thus ensuring an opportunity for lifelong education in rural areas.
- Rural schools expand the range of their offer of non-formal education, including the offer of professional development, interest-related education, offer of professional profile programmes etc., using the technical and material resources of the school.
- Rural schools expand the range of their functions, assuming additional functions, including functions that are not typical to a school, for example, the elimination of social negations and their prevention, as well as the functions of social rehabilitation in the rural community, taking care for children in the day centres of these schools.
- With the growing of educational offer, increase of the target audience and the functions, the process of self-complicating in rural schools' educational environment has been observed. Different types of subdivisions of the environment are created (educational centres for adults, associations, school development funds, bodies of pre-school education within the framework of the school, centres for the rural tourism etc.)
- Rural schools act not only as educational but also the cultural centres in rural communities.
- Schools become the informative centres of the whole rural community, developing and offering to the whole community the resources of their library and computer classes.

In order to evaluate the changeability of the rural schools' educational environment, both in the first (2000-2005), and the second (2008-2012) empirical research, on the basis of all obtained data, all indicators of the educational environment in schools were divided into two big groups: 1) indicators (features) that indicate the constantness or unchangeability of rural schools' educational environment in 2) indicators (features) that indicate the changeability of rural schools' educational environment. The data were processed checking the correspondence of feature selections applying the test for the determination of Chi – Square (χ^2) criterion in SPSS programme.

The question of the research was as follows: is whether the number of constant features equal to the number of changeable features of the educational environment in rural schools?

Table 1

Distribution of qualities according to the qualities group (2000 – 2005; 2008 – 2012)

Groups of qualities	**2000 – 2005 (N = 128)**			**2008 – 2012 (N = 50)**		
	The Observed qualities N	Indicative allocation N	Difference	The Observed qualities N	Indicative allocation N	Difference
Constant qualities	67	64	3,0	24	25	1.0
Changeable qualities	61	64	-3,0	26	25	-1,0

The data were processed by means of SPSS software. We obtained the following results (Table 1, Table 2).

Table 2

Obtained results (2000 -2005; 2008 – 2012)

N	Indicators	The Obtained Values	
		2000 - 2005	**2008 - 2012**
1.	Chi – Square (χ^2)	0,281	0,080
2.	df	1	1
3.	Asymp.Sig.	0,586	0,777

In the first empirical research it could be concluded that with the materiality level α=0,05 and the degree of freedom df=1 the value of the Chi – Square criterion is: χ^2=0,281<$\chi^2_{0.05;1}$=3,84; but p=0,586>α=0,05.

However, the results of the second empirical research enabled us to conclude that with materiality level α=0,05 and the degree of freedom df=1 the value of the Chi – Square criterion is: χ^2=0,08 < $\chi^2_{0,05;1}$ =3,84; but p=0,777> α=0,05.

The hypothesis H_0 could not be given with 95% possibility both in the first (2000-2005), and the second (2008-2012) empirical research. This meant that the number of qualities which indicated the constantness of rural schools' educational environment was statistically equal to the number of those qualities which indicated the changeability of rural schools' educational environment. These qualities were evenly distributed. This means that in Latvian rural schools' educational environment the process of bifurcation or splitting takes place: 1) the specifics of educational environment in rural schools is maintained, its traditional values; 2) the process of searching for innovations and changes takes place.

On the basis of our research (results we could work out classification of the rural schools' educational environment. There are the following environmental models groups of the Latvian rural schools.

1. Traditional educational environmental models offer the most widespread educational environmental models such as a basic or secondary rural school (functioning of schools responds to the Educational Law of Latvian Republic, the school's functions correspond to pupils' audience accordingly to basic or secondary school's educational programs). The school's operation is without any changes because, firstly, *the school's administration does not see any danger for school's existence* and *sustainability in future*, there is enough number of pupils and set of forms that have not substantially changed in the last years, that is why the rural school does not want to change anything in its every day work because the basic audience is saved – schoolchildren and youngsters, secondly, the *school's administration and all personnel perceive danger of school's existence and its sustainability in future* because the number of pupils and forms have decreased or it has been always a situation that the amount of pupils and forms were very low. Therefore the school as an environmental system is not opened to changes from inside („*from the bottom*"), but waits for favourable reforms from outside („*from the top*").

2. Educational environmental models of structural reorganization include multi-structural educational environment. It is related to comprehensive schools that as a result of the optimization in the time of the reform in 2009/2010 school year have become the component of the multi-structural educational environment or substructure: 1) have become a multi-structural educational environmental center that has got one or more branch offices; 2) have lost their independence and were joined to some rural secondary school or basic school in such way becoming the branch office of this particular school.

3. Multi-functional and multi-structural educational environmental models within the framework of one school encompass rural schools that offer multi-divisional educational environment for all rural community because the rural schools are social-cultural environments which offer the formal and non-formal education in the aspect of life-long and wide-long learning. By broadening target audience and functions in the aspect of a person's age period 'down' – preschool and school age children and 'up' – adult formal and non-formal education, rural schools as an educational environment system form new substructures.

4. Combined (mixed) educational environmental models include the features of a multi-structural and multi-functional educational environmental model. The rural school as a multi-structural educational center or as a branch office broadens its functions and increases its target audience by offering a wide range of formal and non-formal educational programmes.

Conclusions

- Already beginning with the 1970-ies till nowadays, an important place in the science of western countries has been given to the concept of a rural community school, and the theoretical basis and future development of it can be found in the publications of several western scientists, who point out the importance of interdisciplinary approach in the research of the educational environment.
- In the 21st century in order to ensure sustainable development for itself and the whole community the rural schools' educational environment is continuously changing: many Latvian rural schools extend their educational offer and increase their target audience, widening the scope of the target audience's age and offered educational programmes, assuming additional functions and self-complicating the structure of its educational environment.
- The results of both empiric research phases testify that the process of bifurcation or splitting takes place: 1) the specifics of educational environment in rural schools is maintained, its traditional values; 2) the process of searching for innovations and changes in rural schools' educational environment takes place. This reveals the uninterrupted changeability of rural schools' educational environment.
- Having assessed the threats of external environment and their own inner potential, rural schools become the educational environment for the whole community thus finding efficient and productive means for the sustainability provision, resources and ways (means) that create a great diversity of models for a school as community's educational environment. This changeability and diversity of rural schools provide opportunities for the solution of the issue of balanced development in the *urban-rural* dimension in Latvia, which facilitates the sustainable development of rural cultural environment in Latvia in general.
- On the basis of the results obtained during the research, all models of rural schools' educational environment can be divided into four groups: 1) traditional educational environmental model; 2) educational environmental models of structural reorganization; 3) multi-functional and multi-structural educational environmental model; 4) combined (mixed) educational environmental model.

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A NEW PROFESSIONAL FOR SUSTAINABLE AGRICULTURE. THE CHALLENGE IN MEXICAN ENGINEERING EDUCATION FOR RURAL DEVELOPMENT

Lorenzo Lopez[1] Ph.D; **Oscar Alpuche**[2] Ph.D
Autonomous Agrarian University Antonio Narro, México[1]
Autonomous University of Morelos, México[2]
lolopez@uaaan.mx[1] ;lalopbar@gmail.com[2]

Abstract: Promoting sustainable agriculture that respond to the challenges of mitigating and adapting to climate change, which contributes to reducing poverty, exclusion and hunger, demand a new professional of agricultural engineering and rural development, with a new professional profile, values, skills, attitudes and capacities to promote changes that rural society demand. Based on analysing the rural reality of developing countries in general, and Mexico in particular, specifies the elements that must give way to the new profile, discussing their integration as citizens of a globalized and multicultural society, in a world becoming more complex, and that it operates under multiple trends and directions. Emphasis is placed on the advantages and disadvantages of promoting education for sustainability and rural development exclusively through transversal content. The research is based on interviews and evaluations of the authors, made a number of educational programs in Mexico, to identify aspects that favour or limit the formation of this new professional to respond to new challenges in higher education for rural development; as well as new capabilities that teachers must acquire to promote it.

Keywords: rural development education, sustainable agriculture, knowledge, skills, competences

Introduction

The course of the agricultural engineering curriculum proposals on rural development in Mexico has been changing and irregular, according to the phases of neoliberalism, the paradigm shift and the priority that the Mexican State gives the agricultural sector and agricultural higher education. Currently, the higher education institutions in Mexico have adopted a policy of accreditation and evaluation of the quality of its programs, making continuous improvement processes are one of the main tools for quality assurance.

In essence, the agronomist in rural development is a trained professional to: develop management plans and meet production technological processes of various agricultural commodities; formulate and implement research projects in various areas of the rural sector, as part of globalized agriculture and social welfare criteria for producers and sustainable development. Ready to operate, manage and work in multidisciplinary teams, implementing, coordinating, evaluating and managing projects related to the promotion of rural development processes.

Moreover, while we agree with the deep criticism of the way in which, in many cases, Rural Development programs are designed and implemented, we believe that more important is to reflect on the current and real possibilities of social change that can offer new professionals, which is important to point out new trends, emerging practices, paradigms and opportunities facing these professionals, as well as new challenges, skills, abilities and attitudes that shapes the educational programs at the level higher education. Therefore, we analysed different programs of study and reflect on the results obtained by a group of managers from different agricultural engineering academic programs in rural development in Mexico.

The objectives of this work are to establish the principal elements to consider in the curriculum of the academic programs in agronomy in rural development, and identify the challenges that derive into the responsibilities of the universities that offer these types of programs.

Methodology

The contents of the paper is based on a comparative analysis of various texts and documents which defines the objectives, competencies, graduate profile and fundamentals of various academic programs

agronomist's career in rural development, which are taught in Mexico, with the purpose of identifying new challenges that must be considered in the training of these programs. Similarly, considering the results of the Symposium "Rural Development: teaching and praxis", held at the University of the State of Morelos, Mexico, in May of 2012, in this event, involving 12 Mexican higher education institutions offering educational programs in rural development engineering, which discussed and analysed the problems, approaches and challenges each face in the light of new paradigms, trends and requirements demanded by society in terms of rural formation.

To complete the study, we performed a theoretical analysis and evaluation of the scientific literature, methodological and different documents, as well as the reflection of the personal experience of the authors in the field of higher education in rural development.

Results and discussion

Considering the major emerging themes that will define the agenda of rural development, the collective of the Symposium "Rural Development: teaching and praxis", held at the University of the State of Morelos, Mexico, in May 2012, identified as the main emerging Practices in Mexican rural society (Hewitt, 2007; Robles, 2007; Análisis del…, 2011):

- the influence of the global food and agriculture policies in the local spaces;
- promoting development processes based on participatory design methodologies for problem solving based on the real needs of producers;
- use of interdisciplinary and systemic approaches to address environmental problems, to learn the complexity and diversity of the ecosystem management;
- encourage the empowerment of producers and their organizations;
- promotion in managing business and family enterprises;
- promote processes under the approach of the "new rurality" and territorial development;
- promotion, vindication and revalorization of traditional agriculture, rural capacities and rural lifestyle;
- enhancing the role of rural women and the importance of non-farm livelihood;
- promotion of organic farming and traditional products and denominations of origin;
- an increasing awareness that hunger, poverty and the environment are intimately related, so it is not enough just to define development policies only in terms of meeting needs;
- the most influential agents in the realization of development policies are producer organizations, especially the traders;
- planning with democratic participation at local government level;
- it is recognized that the technological backwardness is one of the main constraints to increased productivity;
- the services offered to producers must be of quality, timeliness, transparency and profitability;
- greater complementarity of agricultural activities and non-farm income generating and temporary migration;
- claiming of peasant demands by way of mobilizing;
- increased participation of farm products in economic strategies for price stability;
- integration of productive chains;
- promotion of public policy for the reconversion;
- induction of a culture of quality and safety in food production;
- capitalization will field through attendance of public and private resources in the context of a self-advocate rural society.

This, allows to identify, than in the agronomic field are experiencing a change of paradigm, which largely reflects the change of the paradigm of the "green revolution" (the agricultural industry model) to the "blue revolution" (Pauli, 2010), and that is reflected in the boom of plasticulture, precision planting, integrated control of pests, weeds and diseases, and biotechnology, agroecology, permaculture, sustainable agriculture, urban agriculture, among others, along with the decline, degradation and pollution of natural resources that make up a new context and a different agronomic reality.

The technology that exists now has generated two types of society: knowledge and information, it is based on technological advances in communication, it's quality and speed management of information become a key factor of competitiveness (Olive, 2005), the former incorporates the social, ethical and political influence in the development of communication and its technologies.
There are a number of obstacles that limit the full arrival of sharing knowledge societies: the digital divide today not connected to the network means being deprived of access to multiple knowledge, the knowledge divide, much deeper and older, that divides countries and societies, the concentration of cutting-edge knowledge and investments in the fields of science and education, promotes brain drain (Hacia las sociedades..., 2005).

Edgar Morin (1999), indicates that it is necessary in the education: teaching the brain processes and modalities of human knowledge and culture, which can establish the degree of error or illusion of knowledge to address certain issues in a comprehensive manner, to thereby locate local problems and partial; promote individual awareness about the human condition (for the individual, physical, biological, psychological, cultural, historical and social); promote knowledge about the identity of the individual earthly, identifying who you are, where comes and where it goes, and the role of the group in which they work and society; teach uncertainty managing it properly as permits take risks, the unexpected and uncertain; promote understanding, to prevent racism, xenophobia and contempt among individuals and groups, and it is necessary to study the incomprehension from their roots, patterns and effects.

The training of professionals should rest on the incorporation of higher levels of knowledge, promoting teamwork, ability symbolic interaction, extensive knowledge of the production process, development of innovative thinking and proactive and the construction of reviews and propositional attitudes (Olmeda, 1998), promotion of values and attitudes directed to the benefit of society, its environment and its people. Engineering Education (Hanel, Taborga, 1992) should be considered attitudes toward work and society: sustainable development awareness, honesty and professional ethics, productivity, quality, entrepreneurship and capacity of adapting to change. Consideration and respect for cultural, environmental and ethical issues involved in their work, and leadership (Yadarola, 1999).

The professional field of food and agriculture, according to (FAO, 1993), should have a solid ethical and humanistic education based on the principles and values of discipline, perseverance and hard work, honesty, honesty, punctuality and responsibility, love of truth and justice, respect for others, a spirit of loyalty, mutual aid and solidarity, initiative and creativity, permanent desire for improvement, openness to change and innovation. Flexible, eclectic, realistic, pragmatic, creative, witty, critical, with positive attitude, humble, with effective skills in written and oral communication.

Higher agricultural education in Mexico, facing rapid changes in the world and difficult to assimilate them, which leads to the modification of these, tuition reduction, consolidation of self-employment, fragmentation and isolation of the curricula, teaching information and detached from the realities of production, lack of competitiveness, sustainability and equity in training (Marco de…, 2001). The training of professionals should rest on the incorporation of higher levels of knowledge, promoting teamwork, ability symbolic interaction, extensive knowledge of the production process, development of innovative thinking and proactive and the construction of reviews and propositional attitudes (Olmeda, 1998), promotion of values and attitudes directed to the benefit of society, its environment and its people. Engineering Education (Hanel, Taborga, 1992) should be considered attitudes toward work and society: sustainable development awareness, honesty and professional ethics, productivity, quality, entrepreneurship and capacity of adapting to change. Consideration and respect for cultural, environmental and ethical issues involved in their work, and leadership (Yadarola, 1999).

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pragmatic, creative, witty, critical, positive attitude, humble, to communicate effectively in both written and oral.

Higher agricultural education in Mexico, facing rapid changes in the world and difficult to assimilate them, which leads to the modification of these, tuition reduction, consolidation of self-employment, fragmentation and isolation of the curricula, teaching information and detached from the realities of production, lack of competitiveness, sustainability and equity in training (Marco de…, 2001).
Moreover, the emergence of the so-called blue revolution, demand new approaches to agricultural production, including agriculture for sustainable development, agroecology, permaculture, etc. in addition of the prospective of agricultural production, indicating the permanence of intensified agriculture, the need for further training of human resources, retention for open economies, employment in private enterprises and self-employment, as well as increasing the planning, management and agricultural research. The presence of niche opportunity and the low availability of land and water, low investment in the field, need for greater efficiency in the management and use of water, pollution of natural resources and low labor availability.

This situation demands a competitive agricultural education, quality and excellence, with priority to the formation of the student and where practice plays a key role. To achieving that kind of education can select between three models: the dynamic spiral, the multiple intelligences and the skills.
The spiral model is dynamic which could more easily reach the formation of the student, then manages ten dimensions of personality: the sensory-motor, emotional, mysticism, rational thinking, logical, ethical and aesthetic, the causal and spiritual. The multiple intelligences model, aims to address the human dimensions through: truth, beauty, morality, the rational, logical and instrumental. The competency model addresses student training through the rational and logical, which combines theory and practice (Badilla, 2005), is integrated into the globalization process, is supported by various agencies, and boom goes Mexican education increase.

The powers in Europe, is designed to train and evaluate intelligence and predict the success of managers. In the 70's and 80's of the last century and millennium teacher training and competency based business attracted great interest, some educators as Skinner, Mager, Maslow and Rogers were inclined skills training, as well as supporters of the humanistic approach, both schools were accused of a lack of interest in social issues, however, the skills approach to teacher training, allowed to develop more elaborate profiles. This success coupled with the fact that Japan, a country with inventive and great production and generation of new products, owned several organizations working under the scheme of powers, prompting many organizations to adopt that system (Mulder, 2007).

Over time the concept changed from economics to education (Moreno, Soto, 2005) and became more complex, accounting knowledge, know-how, knowledge be, undertake knowledge, of knowing how to live in community and knowledge teamwork, re-know the value of multiple sources of knowledge and personal experience, prior learning of each individual, imagination, art and creativity (Pinilla, 2005).
Competencies have several functions in the education system: are relevant in the discussion of degrees, diplomas and skills relevant to the knowledge economy, the world of knowledge is not enough, it also requires competition; allows recognizing acquired skills in-formal, in order to promote lifelong learning and to address the shortage of qualified people; allows current generations to achieve better performance in their jobs.

The competency-based approach responds to the need of people to make things even better, promotes the integral development of the human being seeks to respond to new forms of work organization under and integrate these in training programs, promotes greater autonomy of the students and teachers makes tutors (Mulder, 2007), seeks to promote learning environments, implementing educational models focusing on the performance (Diaz Barriga, 2006), for each level of competition considered domain (beginner, novice, intermediate, expert and master) and the degree of complexity (start, practice, focus and domain), which facilitates their implementation and evaluation.

The competence profiles that differentiate graduates should handle existing professions, promotes mobility between educational levels, identifies the elements to improve to exercise particular profession, puts into action the knowledge acquired in certain contexts, and that the student is able to

circumvent new situations from a practical conceptual framework previously acquired (Romero, 2005).

Areas of opportunity competencies are: a tendency to lower mastery of basic skills, the knowledge, skills and attitudes are fragmented, the development of skills is given in very general terms, we present a disconnect between competition and performance, and the difficulty of how to determine whether or not developed a competition (Mulder, 2007). Diaz Barriga (2006), challenges the concept of competencies contribution towards education, considering that already had built the term knowledge training and skills development; indicates a lack of conceptual thinking, because there is no clarity on how the approach Competency can be applied in higher education, has few theoretical and pedagogical contributions, also requires clarifying their own language containing its proposal and limits.

The skills are acquired through an educational process determined, and allow the individual to solve the problems inherent to the object of their profession in a particular work context, including the anticipation of problems, evaluating the result of the work and the ability to participate actively in improving production (Levy-Leboyer, 1997). Those powers up the expertise and knowledge to be, involve knowing how to use, require some experience and a relevant consider the context in which competition takes place (Tejada, 2005; Malpica 1999, Hager, Beckett, 1999), have character unit because its elements are meaningful only under set (Malpica, 1999) and have an appropriate level of generality (Hagger, Beckett, 1999).

The new paradigm for sustainable development must question the old styles of development, not only for its immobility and little benefit to developing countries but also that 75% of cases have failed in Latin America and the Caribbean (Souza, 2005). Marketing is the bottleneck in production also means about 50% of the profits, so that should be implemented various forms of presentation and marketing of agricultural products, as the form of sale is through intermediaries.

Professional Skills agronomist

Taking as reference so far described professional skills, and some of the activities to be performed on them, the agronomist, are grouped into technical, methodological and social participation, and are as follows: *a) the Technical skills; b) Methodological competences; c) Social Skills participatory.*

The Technical skills. Establish, implement and evaluate the various crop production techniques to reduce the problems of the production process and maintain the resources involved in the process. Some of the activities to be performed are: establish the current and potential market for the products and by-products of crops or to implement, select (s) kind (s) to grow, making the preparation; implement methods of plant propagation, determine the type, source and method of use of nutrients to use, troubleshoot plant stress; apply the methods or harvest or crops, and postharvest handling techniques applied to agricultural products and byproducts depending on the particular market.

Making efficient use of water for agricultural purposes, seeking to conserve and increase the ground water table and improve the use of surface water in order to increase agricultural production. Some of the activities to be performed include: assessment of crop evapotranspiration, assessment of water quality, design or selection of the most efficient irrigation method, design and evaluation of irrigation and drainage, and evaluation of groundwater levels and the cost of pumping water.

Conserve, restore and optimize the agricultural land, seeking to reduce erosion, pollution and degradation to sustain and increase agricultural production. Some of the activities to be performed include: development of diagnostics on the agricultural situation of soils, application of methods and techniques for the improvement and recovery of degraded soils two, using methods of soil conservation tillage; assessing the degree of contamination of water used and suggestions on ways to clean up the same.

Select and use agricultural machinery and equipment, to make more efficient use and increase agricultural production levels without adversely affecting natural resources. Some of the activities to be implemented are: selection and evaluation of machinery and equipment according to the crop, its stage and environmental conditions; planning and evaluation of the requirements of spare parts and

maintenance of machinery and equipment according to their use and production units, characterization of tractors in terms of their power and use, proper repair agricultural machinery and equipment.
Diagnose, monitor and prevent weeds pests and diseases that occur in crops in order to increase production without harming the environment. Some of the activities to be performed: morphological, physiological and contextual pests, weeds and diseases, implementation and evaluation of techniques and methods for the prevention and control of pests, weeds and diseases.

Methodological competences. Analyse, implement and evaluate various strategies of sale and marketing of agricultural products and byproducts to improve the profitability of production and offer better quality products for consumers. Some of the activities to be implemented are: characterization of the current and potential market of agricultural products and byproducts; morphological, physiological and organoleptic quality of the products and by-products of agricultural production, characterization of the various forms of packaged-do of products and agricultural products; chains strategically analyse product crop system implemented, implementation of sales strategies and marketing of agricultural products and byproducts; conservation financial analysis, sales and marketing of agricultural products and byproducts.

Managing companies and projects that seek to increase agricultural production levels and quality of agricultural products and by-products, as well as the conservation of natural resources. Some actions to implement are: search, select and integrate information for planning, organization, evaluation and feedback from companies and projects and provides the potential risks; applied methods and techniques for the development of enterprises and projects; evaluates the company's financial analysis and value judgments on them and proposes how to address the deficiencies.
Establish, implement and evaluate energy alternatives derived from agricultural products that are economically viable and environmentally sustainable to help reduce the problem of energy supply. Some of the activities to be implemented are: assessment of the energy potential of agricultural products or byproducts.

Social Skills participatory. Design, implement and evaluate various strategies for rural development, looking for the benefit of rural society and the conservation and enhancement of natural resources. Some of the activities are to develop, manage resources and programs, formulation and evaluation, organization and training of producers and implementation and evaluation of rural development models. This means the implementation of various forms of communication and a form of group and individual work.

Conclusions

- The XXI century University is called to meet the educational, scientific, technological and cultural demands of society, conform and representing a dynamic force to be engaged citizens that society demands, under a free spirit, democratic, humanistic and critical . But to accomplish any great university is necessary to generate a common impulse through participation and dialogue, to set up a free university, innovative, participatory, tolerant and governed by the principles of commitment to society they should, search quality and academic excellence.
- The challenges and the challenges facing rural society in Mexico, demand for agricultural universities and their academic programs, new attitudes and new commitments. The future positioning of the university must be based on strengthening its role as educator of citizens into an institution responsible for the generation and dissemination of knowledge, an inexhaustible source of creativity, innovation and entrepreneurship, and in promoting the education and advocacy values of our society, and where research is understood as the systematic search for answers to the questions posed by the reality; allow better use of their results, and enhance, at the same time, the solution of social and productive demands.
- Of agriculture depends food security, concept that alert to the serious risk that countries are producing food waives their peoples. In the context of a global economy, the overwhelming market forces make it essential and critical depth analysis of the current model of rural production, to find one that leads us to ensure food production and international integration without major trauma.

- Hence, universities should provide answers to questions such as: what we produce and how we do it? Reconciling sustainability, productivity, profitability, competitiveness and fairness, to exploit and conserve biodiversity, food needs and raise the living standards of farmers groups.
- No productive sector can survive a crisis such as multimodal and permanent agriculture suffering. In this complex and globalized world wealth is no longer measured only by the possession of financial capital and natural resources, but by the production, generation and management of knowledge and information.
- The university as a social institution created to knowledge and academic reflection cannot hide and develop without making commitments. The contributions of the university depend on its strengths, and its action is most effective when facing social problems and which seeks to address labor and have been linked to concrete realities.
- If agricultural universities do not assume a more involved role in the problems of rural society, its graduates definitely will not and should also be alert to the growing trend of turning knowledge into a commodity, subject to market rules and ethical considerations outside of their work, their origin and role of rural society expects of them: a nearby college to the real world, their demands, challenges and needs.

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INTEGRATION OF THE FIGURATIVE INSIGHT WITH THE ECOLOGY OF PERSONALITY

Baiba Reinberga[1] Mag. paed.; **Beatrise Garjāne**[2] Dr. paed.
Daugavpils University, Latvia [1]; Riga Teacher Training and Education Management Academy, Latvia [2]
baiba.talce@inbox.lv[1]; beatrise.garjane@rpiva.lv[2]

Abstract: The 21st century tendency in the educational process is following – it is mainly based on rational discourse, thus the conditions concerning philosophy, philosophy of language and figurative insight as the recognition of sense and meaning are excluded. That way, students have problems to look into themselves, their thinking from the aspects of interpretation, association as well as imagination and fantasy. Both pedagogue and student need the language of art as a tool for imagination in order to harmonise the intellectual and emotional development of personality; therefore the aim of this paper is to determine the connections between the figurative insight and the personality's quality. The analysis of the figurative insight phenomenon and analysis of the pedagogical documents (Centralised Exams in Latvian and Literature part C and other secondary school student creative works) by comparing with Venker test results. The level of secondary school students' figurative insight was determined revealing its pedagogical interaction with the personality development**.** The pedagogical opportunities to develop the figurative insight are stated in conclusions.

Keywords: integrity in education, figurative insight, personality's quality.

Introduction

While the development of the new technologies is in reverse ratio with human sense of responsibility and a part not the entirety becomes the awareness and reality (Neville, 1999, 2), the teacher's ability to help the student with integrity to create his/her personality and to form the insight of his/her thinking as something valuable becomes more and more important. "The mental structures have reached their edge in the technocratic phase; consequently, the mental can be perceived as energy, which projects through the entirety transparently." (Neville, 1999, 3) Adaptability in the 21st century means the rethinking of interconnections and comprehension of dimensional connection of three secondary school level art subjects that have faced strong cuts of lessons – Literature, Visual art and Music. A teacher cannot just give the information without developing mental skills. "The resources for such education are dried up; one's intellectual competence should be made hand in hand with the moral competence" (Bēme, 2007, 6-8), thereby providing sustainable attitude in four dimensions: ecological, social, economical and cultural, promoting quest for identity and personal significance. *The aim of the research* – to recognise the connections between the figurative insight and the personality's quality – was determined by a need to develop the creativity, critical thinking, ability to maintain the emotional experience, responsibility and the independence of personality in students. Versatile and harmonic development of personality serves as a base for the idea of integrity in education that foresees to realise not only the human potential but also to help every person to realise the transcendent entirety by perceiving the world from different points of view and not separating the educational goals and values from the personalised world. The humanitarian culture was inherited from generation to generation; its matrix gave a certain percept about the universe/the world, but these days it "consists of fragments, which are extracted from the flow of information, casual affairs, random correspondence, associations of ideas. The school adapted to such ideas does not form a personality but rather a mass human." (Kučinskis, 2001, 57).

The existence of the hierarchic entirety in the pedagogy is promoted also by artistic expression and insight – the presenter of the image and the spectator of the art as the re-creator of the image; this is the co-existence how art can be a dialogue, therefore images and their interconnections can be used in order to integrate various subjects; that way thinking process can be made non-linear, thus promoting art integration in a new areas of knowledge as well as developing novel ways of thinking. The art in the process of creating sphere of values using specific means assists in the development of personality's thinking and figurative world's perception and insight. In the Information Technology age, when the majority of human perception is based only on pictures, it is exceedingly important to

seek and to find the connection between the image (in such forms of art as Literature and Fine Arts) and pedagogical curriculum (in such school subjects as Literature and Art). The effect of the image is not directed by the object itself, but by the spectator's attitude towards the work of art and imagination. "*To imagine something does not mean to receive a mental picture, but to recognise the resemblance in a clear linguistic way. That way, the meaning in not just schematic, but it becomes readable through the image represented or described in metaphor as well. The incorporated resemblance allows the imagination to act in new situations and reveals other opportunities of the view and perception; [..] it can present the connection between the language and existence.*" (Narkēviča, 2010, 103)

The figurative insight (Figure 1) is a significant stage in the perception and cognition of verbal image as through the process of imagination the hidden meaning of the word can be revealed. In the context of figurative insight the relations between the language sphere and emotional sphere (verbally linguistic aspect and visually semantic aspect) serve as catalysts for the formation of a new sense for phenomenon and the marking of new attitude. For example, cognition should not be the aim of Literature lessons, it should serve just as a tool to stimulate feelings, senses and experiences, the actualisation of new ideas and divergent thinking. A creative result in the teaching of Literature can only be achieved in the process. Reading as image perception process is not just acquiring the information, but the insight in text, decoding of signs and recognising of expression. There are several completely different approaches to reading – just reading the text to gain the information, reading and understanding the content, reading and penetrating the point and idea of the content, integrating the insight and interpreting it into oneself. There is growth of informative energy in an unusual collocation as the network of associations is expanded – the amount of informative energy is directly proportional to non-expectations.

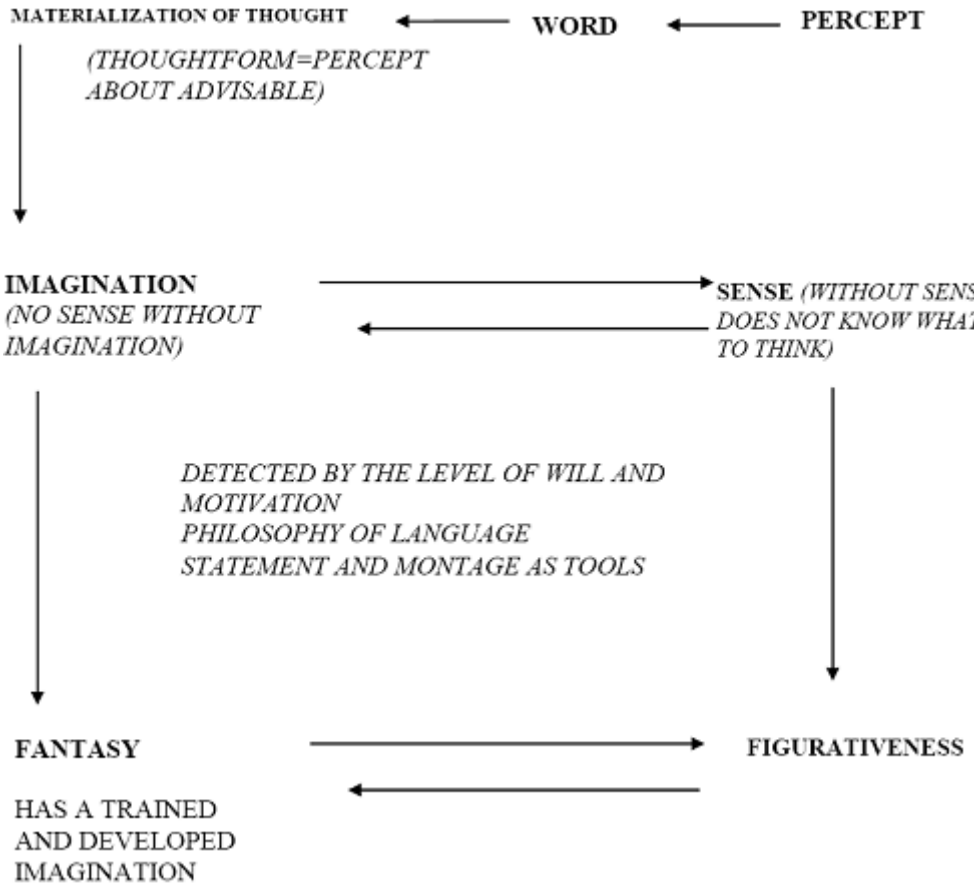


Figure 1. The process of figurative insight (Authors'design).

As a result of poor imagination and lack of reading experience there is a lack of ideas among students for the practical implementations in the creative works concerning the artistic image; student is not

able to create his/her own establishment that can be used for the associations on a certain level. Dominant – an image that stands out in a specific artistic mean of expression, created using verbally figurative means of expression – epithet, simile, metaphor, personification, metonymy, subtext, paradox and symbol – can solve this issue.

By mutually integrating such subjects as Literature and Visual Art using dominant the last can help to percept and stress the motive of the image and reveal the inner using the outer in this process. Sosir's mentioned differences between the *lengue* (grammar system acquired when learning language) and the *password* (multilevel expressions of language written and spoken) present the significance of the title as it can waste, fill or enhance this meaning (Kalers, 2008, 85). If the creative thinking can link the components from the emotional sphere with the ones from intellectual sphere on a figuratively high level through the realised perception and notionally understood dominant, it is possible to move towards the practical expression development implementations – drawing, writing. In a creative implementation a word can transform into a visual image and a visual sign into a word. A visual image assigns a multi-dimensional effect in the space of thinking that expands to a new aspect. When a student allocates the sense to new meanings in his/her work, meanwhile they are interpreted in himself/herself.

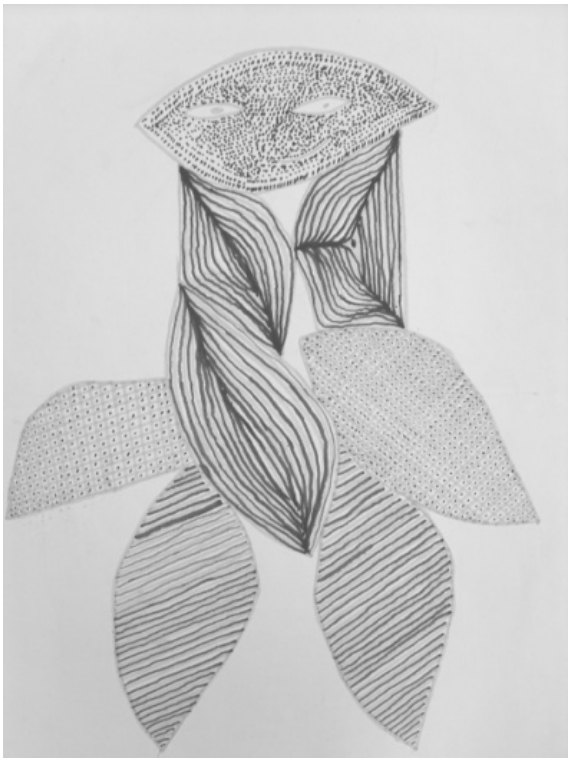
Such marking of a meaningful space is closely connected to unusual form of thought; this space becomes a position, point of view, from which this place stands out. This position just like in a filmmaking and photography is called *an aspect.* An aspect gives a privilege to see more than presented. There is no such term as *an aspect* used in the theory of literature, but it is the one – unusual, weird sight, perception and thought angle – that the creation and understanding of art depend on. While forming images the aspect connects the non-linkable, it reveals unseen notions and meaning in their relations. An idea promotes the fantasy and the fantasy creates ideas. For example: *orange* is 1) a fruit (if we want to eat it); 2) colour (if painting); 3) a planet (if we are tiny and able to live on it); 4) our house (if we are seeds); 5) the sun (as light); 6) weight (for the little who should carry); 7) the moon (the night in the branches of tree). The criterion of creative work is the level of figurative insight regarding to these characteristics of images that separates and highlights them.

Visual signs combine the visible and the invisible layers of existence, the visual image helps to realise the ideas that are not noticed in the verbal level. An abstract drawing is not just a mark, but it incorporates a flash of consciousness, because "*to write means to move the senses of the world, to set the indirect questions about this sense. Sense is confirmed, mutually competes and changes one another, the senses come and go, but the questions stay*." (Kalers, 2008, 41)

Methodology

The participants in the research were 113 secondary school students and three art pedagogues as the evaluators of creative work results, as well as 177 randomly selected secondary school graduates. The research was carried out in three general education secondary schools in order to examine the level of figurative insight.

The respondent group of 86 students in the Grades 10-12 could write the creative works using proposed art works created after visual and verbal dominants – a title *bird* integrating Literature, Music, and Art (Figure 3) and the title governor integrating Literature, History, Geography and Art. (Figure 2).



- Leaf governor
- Grass governor

Figure 2. Drawing author: Inese G.

- Two in loneliness
- Bird black songs
- Song in black and white

Figure 3. Drawing author: Līga K.

These images (Figure 2, Figure 3) of visual and verbal dominant were created by students on a basis of free associative choice. In order to determine the level of figurative insight, firstly, the proposed dominant title based drawings were created in the Art lessons, secondly – the headings created in Literature lessons. Creative works where written in History, Geography, Music and Literature lessons; the creative works were assessed by Literature pedagogues according to criteria whether the written work fulfils:

- Dominant in the level of perception – 1
- Confirmation and promotion of dominant- 2
- Interesting elaboration on dominant - 3
- Modifies independent solution - 4
- Reveals unknown – 5
- Inadequate – 0

Furthermore, the opportunities of the development of figurative insight were tested on 27 students from Grades 10 – 12. Research was carried out from September 2008 to December 2010 by including 21 exercises to test figurative insight, concerning levels of precept, imagination and fantasy, in the curriculum of Literature. The exercises were a part of the test, the maximum mark for these exercises was 63 that corresponds to the figurative insight level achieved (1-10). The results of exercises are compared with the obtained percentage in the Venker test (Venker, 2004). (Figure 5) Venker test determines whether the students with higher test results are more creative as well.

In addition, 177 Centralised Exams in Latvian and Literature part C (poetry analysis) (CE) were analysed determining the level of figurative insight by recognition and perception of figurative components and images. The eligibility and appearance of examples in students' work was evaluated by following criteria – correct example, wrong example or no example.

Results and discussion

The solutions of dominant are just subjective interpretations as there is no image that has a single particular sense. The dominants described by students show that the actions of imagination can lead to fantasy as a form of creative, spontaneous, image creating, separating, uniting, combing and the unknown revealing processes. The summary of assessment carried out by Literature teachers shows that the creation of images by secondary school students complies with following: 16% - Dominant in the level of perception; 16% - Confirmation and promotion of dominant; 26% - Interesting elaboration on dominant; 27% - Modifies independent solution; 15% - Reveals unknown. (Figure 4)

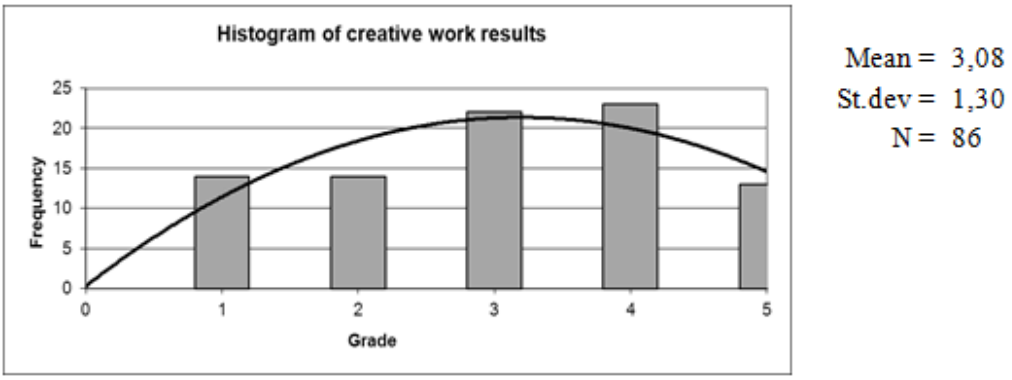


Figure 4. Results of creative works.

As the creative process of reading is influenced by both subjective (personal and individual aspect) and objective (dominant) factors, the research results outline particular tendencies. The findings of students' creative works selected using the class principle show a connection between the creativeness and levels of figurative insight – the ones with the F, D, B, H profiles (F – harmonised and harmony desiring one; D – analytically thinking one; B – critically thinking one; H – sensitive (Venker, 2004)) have achieved the highest results. The linear correlation conforms that, when the level of insight is changing, the level of creativity can change as well (Figure 5).

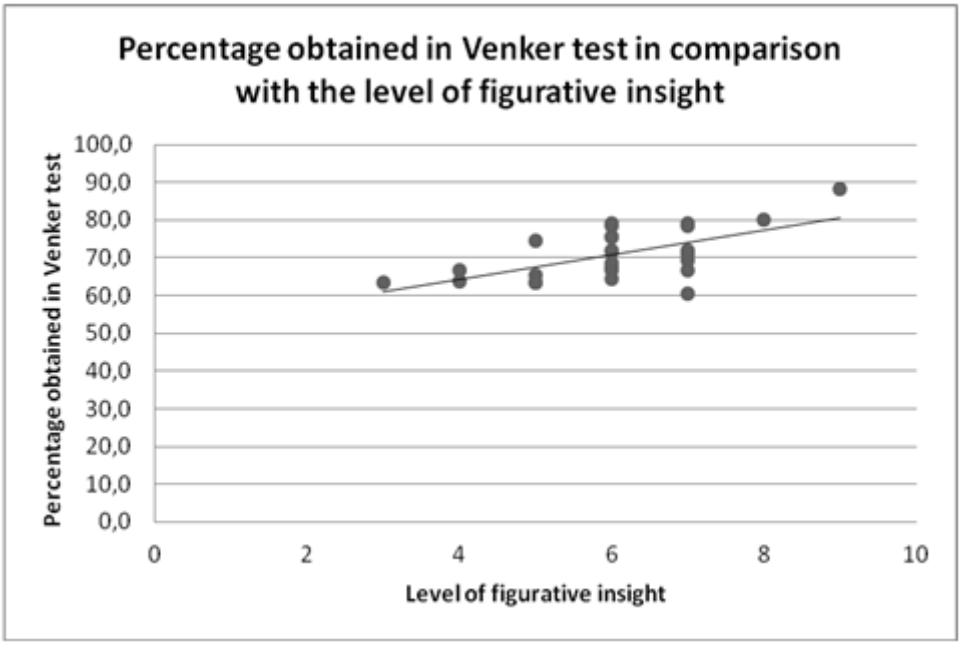


Figure 5. Connections between the figurative insight and creativity.

What is more, in CE the figurative insight of secondary school graduates was examined by recognition and interpretation of poem's motive, characters and figurative means of expression. Secondary school students could choose the associative ways from percept to symbol in both CE poem reading and creative exercises to comprehend the particular verbal or visual image. The aim of these ways is to

connect the levels of figurative insight corresponding to each one of eight figurative means of expression with the action of figurative insight, perception and understanding. It is possible as the language is a multi-level entirety of sign systems.

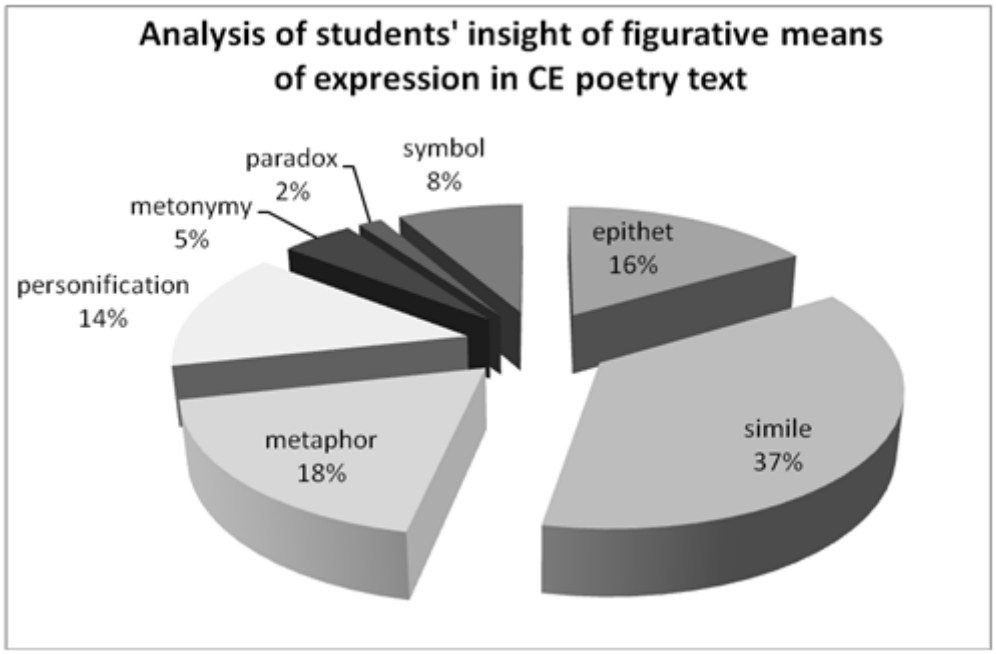


Figure 6. Usage of figurative means of expression.

The analysis of CE reveals the percentages of the facts illustrating figurative insight. The diagram (Figure 6) shows that most of the students recognise such figurative means of expression as epithet (16%), simile (37%) that can be also in the direct meaning, and metaphor (18%).

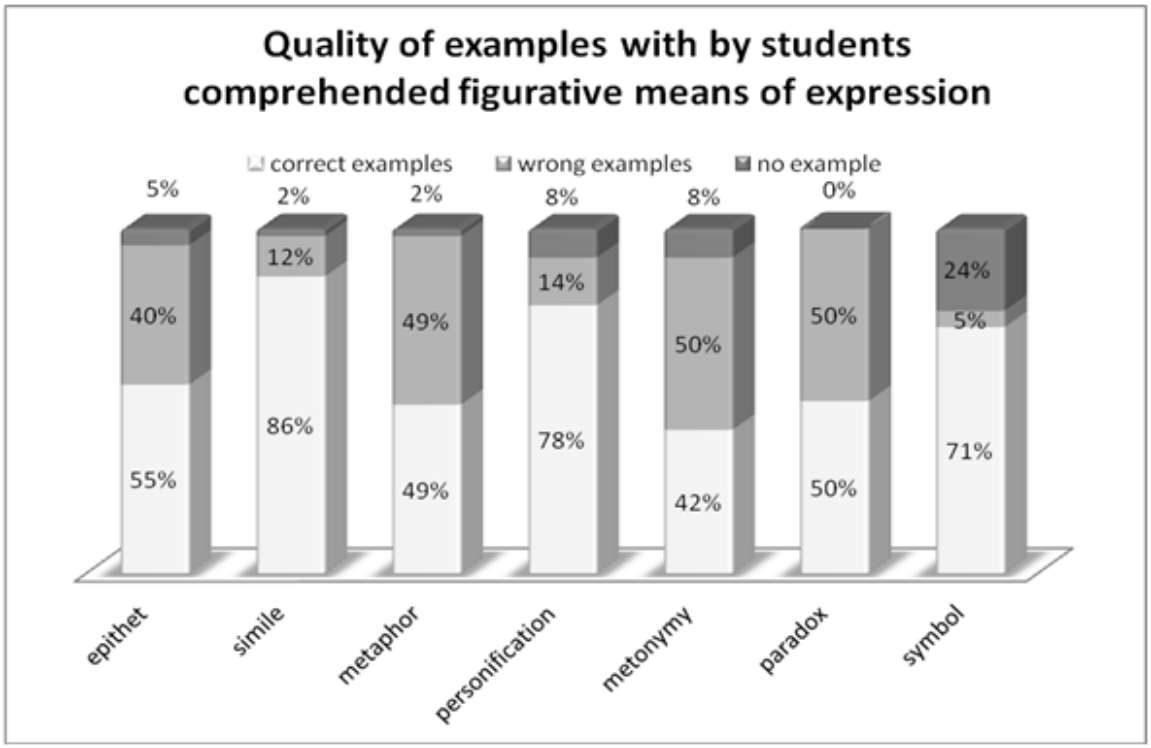


Figure 7. Quality in the usage of figurative means of expression.

The comprehension of the figurative means of expression is characterised by the examples mentioned by students (Figure 7). The quality of examples given by students arouses a discussion about the competency of art pedagogues (especially Literature teachers) as well as the need to promote the

figurative insight development of students and to develop methodology; the percentages of example quality testify the reading generally in the level of percept.

Conclusions

- The figurative insight as the promotion of thinking and perception unity contributes to the creativity of personality and experience of values.
- The figurative insight should be developed in the art lessons using verbalisation and visualisation; their integration incorporates philosophical research, recognition of values, modelling in thoughts and games with a word.
- The visual image usage in order to reveal the verbal image creates self-expression forms perceiving and accepting art as a creative activity and a space for personality's harmonic development.

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A MODEL FOR FACILITATING SUSTAINABLE TRADITIONAL CULTURE IN PRIMARY SCHOOLS

Gunta Siliņa-Jasjukeviča Dr.paed.
Riga Teacher Training and Educational Management Academy, Latvia
guntasilina35@gmail.com

Abstract: The main objective and instrument of any development is an individual, who continues and develops culture of the particular society from one generation to another. If there are no people who speak the same language, inherit and develop their cultural traditions, then the nation stops its existence as one social community and turns into a museum exhibit of human culture. Latvian regional cultural traditions display the unique relations with nature, history and other people. It fulfils the function of the world integrity so essential for human orientation and interpretation of this world, the other world and the whole universe. The objective of this article is to offer a theoretically well-grounded didactic model for facilitating sustainability of Latvian regional traditional culture in education. The discussion is based on the conceptual guidelines of an individual's socio-ecological development. Theoretically supported regional traditional culture model in primary school is created and its most meaningful structural components are described.

Keywords: regional traditional culture, primary education, traditional culture study model.

Introduction

It is necessary to think about sustainable development not only from an economic or ecological point of view. Culture as the resource for sustainable development can be used to achieve economic, social, environmental and educational objectives. It also possesses symbolic features and meaning, which is the foundation for an individual's cultural affiliation. Culture is an objective and an instrument at the same time.

The objective of the cultural unit in the document 'Sustainable Development Strategy of Latvia until 2030' is to develop cultural environment for competitive national identity, creativity and regional development of our nation, formation of the sense of belonging. As the long-term activity priorities here are mentioned: political national development, comprehension of national identity, retention of our Latvian language and use of the potential of various other languages, use of cultural capital for qualitative environmental development and development of creative society in the regions, as well as involvement of society in the cultural processes (Sustainable Development Strategy of Latvia until 2030, 2010).

Culture gains its importance only when being applied. Multicultural reality requires from any individual very good comprehension of his/her culture. It requires preserving of the true national spirit, not only its external cover.

The latest researches show that it is a problem to ensure sustainability of Latvian regional culture in education – the existing educational materials have to be improved from the content and methodological point of view (Anspoka, Siliņa-Jasjukeviča, 2011ab). It is necessary to have more active and purposeful cooperation in the process of transmitting traditional culture between the tradition bearer and the acquirer. Also the teachers, more than ever, need quite a lot of methodological support for the implementation of purposeful regional traditional culture learning process within various stages of school education (Siliņa-Jasjukeviča, 2011a; 2011b).

The primary environment for acquiring one's own culture is the family, the secondary – various social and state institutions, including schools, where any individual consolidates and learns the norms of activities, behaviour and communication. It helps to socialize and to fit in well in the particular community, ethnos and nation (Bronfenbrenner, Morris, 1989; Rogoff, 2003).

What should an ideal model for traditional culture studies be like in primary schools? The model, which ensures sustainable development of traditional culture and allows to responsibly maintain the variety of Latvian regional culture for future generations?

The aim of the study is to provide a theoretically supported model for the promotion of sustainable regional traditional culture in the pedagogical process in primary schools.

Methodology

The theoretical method has been used in the research - analysis of scientific literature and documents.

Results and discussion

Culture as a phenomenon is not inherited biologically. It has to be taught and transferred from an individual by the method of group socialization or *inculturation*. The most intensive process of socialization takes place in one's childhood (Rogoff, 2003; Piažē, 2002).

The process of *inculturation* helps any individual to exist and accomplish oneself within the particular culture, thus allowing to receive not only "information about cultural traditions, values, norms, symbols, realities, etiquette, fashion, styles, formal and informal spiritual authorities, prestigious activities, behaviour and communication forms, aesthetic and intellectual streams". (Geertz, 1973, 56), but also experience the mentioned cultural expressions as personally important and valuable.

Traditional culture is a set of creations based on peoples' traditions, the people living in a particular socio-ecological environment, where this set is recognized as their heritage, reflects identity and the general values of this community and is passed from one generation to another with some modifications.

The forms of traditional culture are language, folklore, music, dances, games, myths, rituals, customs, craft skills, architecture, etc.

Latvian regional culture forms the foundation for our national culture. In various regions of Latvia it contains differentiated content and its manifestation form, which includes our historical memory for many centuries, experience and objectives in a very concentrated way. Traditional culture is the core for an individual, kin, group, community and national identity.

According to the theoretical viewpoint of socio-ecological development about an individual as a person capable to adjust creatively to any environment, the person forms individual relationships with the particular socio-cultural environment, shows relevant behaviour and interaction with it (Bronfenbrenner, Morris, 1989).

It is essential for the development of any individual to have comprehension not only about the general relations among individuals, but also relations in the particular cultural environment (Bronfenbrenner, Morris, 1989; Piažē, 2002; Špona, 2006, Rogoff, 2003).

Respecting this opinion about the importance of socio-cultural environment for acquiring traditional culture, the ecological individual development concept was analysed (Bronfenbrenner, Morris, 1998; Bronfenbrenner, 2005; Baacke, 1999; Sebba, 1991; Eratuuli, Sneider, 1990). This conception helps to understand the role of various systems for the development of personalities within certain cultural environment. It also provides a possibility to notice interaction of these levels in the process of transmitting cultural traditions and sustainable development.

There are 4 important systems for individual development and activities (Bronfenbrenner, 1994):

- *microsystem* (family, primary school, where an individual situational self-feel changes into the dominating self-feel);
- *mesosystem* (extended experience provided by the family, group mates, including various skills, attitudes and knowledge);
- *exosystem* (is an environment in which the individual is indirectly involved and is external to his experience yet);
- *macrosystem* (experience of relationships between the individual and his/her socio-cultural environment. In wider meaning values, norms functioning in the society and being transferred from one generation to another generation thus influencing any individual identity). Each generation develops in a unique;
- *chronosystem* (encompasses change or consistency over time).

Diether Baacke adds to the conception of Urie Bronfenbrenner and points to the 4 important zones or factors for the development of any individual (Baacke, 1999):

- *ecologic centre*, which includes the person's family, nearest nature and cultural environment around it.
- *the nearest ecologic space*, which includes the nearest society (neighbours, friends, classmates).
- *the nearest external contact places* and cultural environment.
- *ecological sectors* like schools, interest centres, shops, a culture house, where the person acquires good behaviour and ecologic periphery, which he/she contacts from time to time.

To the ideas included in the Ecologic conception he adds spatially objectful surroundings, time structure and intrapersonal communication or necessity for interaction between nature, cultural environment and society.

Studies where the possibilities of socio-cultural environment are applied, provide unlimited possibilities for an individual to be in contact with regional nature, cultural artefacts and the society (Sebba, 1991; Eratuuli, Sneider, 1990). All the named parts as a unity allow implementation of sustainable regional traditional culture studies.

It has been stressed in all the theories of cultural and individual development that cultural environment, society and cultural facts help any individual to form understanding of the world grounded on the associated system of values. This understanding of the world is used within the process of studies of other cultural systems, regularities and values in later stages of one's life (Rogoff, 2003; Vigotskis, 2002).

The above mentioned facts allow us to say that the following structural components are important within the model of regional traditional culture studies:

- *spatially objectful surroundings* or the place for presenting traditional culture – ***nature and socio-cultural environment***, which influences the factual and the procedure aspects of the model;
- ***time structure* or *content of regional traditional culture (the factual part of the model)***, which has been chosen according to the calendar dates (seasonal festivities) and include also celebrations related to the changes in one's social status (family celebrations), as well as every-day traditions.
- *intrapersonal communication***,** which is reflected in ***the social multiform interaction and cooperation among the teacher ↔ the student ↔ the family (the procedural part of the model)***.

Primary school children are connected to the regional nature and socio-cultural environment most of all. The cultural and natural landscape, cultural facts (home, school, natural objects, cultural and historical objects), society (family, mates, traditional folklore experts– story tellers, musicians, craftsmen), all this is unique in every area and town of Latvia. It is important to get acquainted with the environment and people who create and use this culture, in order to have the sense of belonging to the local culture, to personalise and value it.

Traditional culture is not only a list of dry facts in a study book, in a story told by a teacher or in a museum exposition. It has to be shown as a phenomenon within any pedagogical process, which is used by the society in their everyday life and celebrations.

If the content of traditional culture is included into various school subjects and its link with the local cultural environment is displayed, it creates a very positive situation for ensuring sustainability of traditional culture, as each generation activates its culture "again and again" (Bula, 2000; Rogoff, 2003).

Both, regional nature and socio-cultural environment suggest which content from the factual model should be chosen, but practice provides a real link with it. According to the theories mentioned before, the model includes several important layers (Figure 1).

Spiral layers reflects traditional culture pedagogical process in school - cultural environment of the school, student's family, region, regional nature and cultural landscape, the particular area within the socio-cultural environment of Latvia, Latvia within the multicultural world. They are considered as a whole (Siliņa-Jasjukeviča, 2011ab).

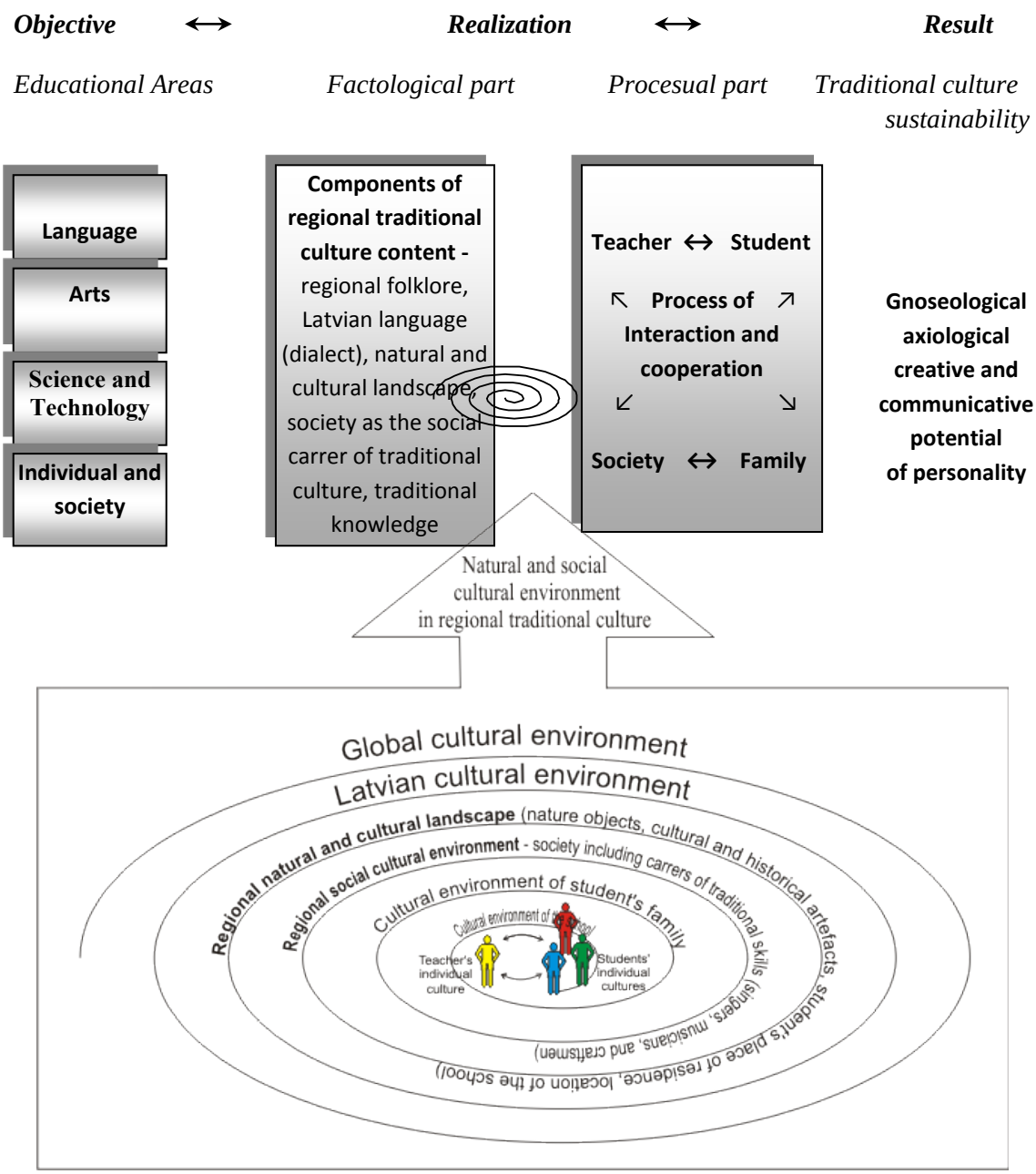

Figure 1. The model for regional traditional culture studies in primary school (Siliņa-Jasjukeviča, 2011).

Educational policy of Latvia in general is oriented towards traditional cultural studies via the content of various school subjects (Anspoka, 2007, Siliņa-Jasjukeviča, 2011ab). Acquiring of cultural heritage is included within all the primary school subjects – languages, technologies, sciences, arts, humans and society, the class lessons, so that students gain a row of necessary skills, competencies, opinions needed for their future socialization (Noteikumi par valsts.. , 2008).

The model of regional traditional culture studies emphasises inclusion of traditional culture aspects from the particular region into all of the compulsory educational areas and subjects. This is achieved by social cooperation and interaction in nature and socio-cultural environment, thus allowing gradual achievement of sustainable traditional culture for the particular area.

When implementing the factual and procedural part of the model, it is important to pay attention to the correctional, developing and educational aspects.

It means that it is necessary to saturate the content of various school subjects with plenty of factual materials. It will not only help to acquire certain facts about Latvian culture, but first of all, it will help to study the content of regional traditional culture by exploring and understanding:

- regional nature and cultural artefacts within the regional cultural area;
- contribution of the local celebrities to the development of local traditional culture;
- the characteristic social every-day habits, farming and economic traditions, craftsmanship;
- the essence of traditional seasonal festivities, celebration times, the main ritual activities, their utilitarian and symbolic meaning.
- regional folklore associated with the every-day and seasonal habits and the related traditional singing, instrumental, choreographic, language/dialect application skills (Table 1).

Table 1

The recommended content of regional traditional culture in primary schools

Components of the tra-ditional culture content	Explanation of the traditional culture content components	Appropriate educational areas for studies of traditional culture content components
Regional folklore	Theoretical studies and practical learning of the regional seasonal festivities and family celebrations, by using various folklore genres: folk songs, fairy-tales, legends, stories, ghost stories, riddles and puzzles, beliefs, proverbs, sayings, jokes, dances, games, etc. Focus on the ritual structure, the main ritual activities, their symbolic and utilitarian meaning.	Languages– Latvian language and literature. Arts – music, literature, visual arts. Humans and society - social sciences, ethics, sports. Science and technologies - housekeeping, handicraft, maths. Class lessons.
Regional society	Exploring and research of the contribution made by the local celebrities for sustainable traditional regional culture. Focus on practical cooperation with the local story tellers, craftsmen, musicians, singers and the local history researchers.	Languages– Latvian language and literature. Arts – music, literature, visual arts. Humans and society - social sciences, ethics, sports. Science and technologies - housekeeping, handicraft, maths. Class lessons.

Continuation of the tabele 1

Components of the traditional culture content	Explanation of the traditional culture content components	Appropriate educational areas for studies of traditional culture content components
Latvian language/regional language dialect	Gradual studies of the local language dialect by using the local folklore materials: (folk songs, folk stories, short folklore) and collaborating with families and the local society in this cognitive process.	Languages– Latvian language and literature. Arts – music, literature, visual arts. Humans and society - social sciences, ethics, sports. Science and technologies - housekeeping, handicraft, maths. Class lessons.
Natural and cultural landscape	Theoretical and practical studies of the regional geographic situation and objects (rivers, lakes, mountains, ravine, caves, huge ancient boulders and ancient trees, etc.). Theoretical and practical studies of cultural and historical sites (mounds, ancient ritual sites, sacred sites, etc.) and studies of the related cultural heritage.	Languages– Latvian language and literature. Arts – music, literature, visual arts. Humans and society - social sciences, ethics, sports. Science and technologies - housekeeping, handicraft, maths. Class lessons.
Regional traditional skills	Learning of the regional traditional singing skills for every-day situations and celebrations. Learning to speak the particular language dialect. Learning the skills of traditional instrumental music: Latvian harp, flute, bagpipes and other instruments etc. Learning of traditional choreography – dances, dancing games, games for the related every-day and festivity situations. Traditional housekeeping skills (room decorations according to the season, traditional cousine). Craftsmanship learning: weaving, knitting, embroidery, wood crafts. Traditional national costumes. Behaviour experience during seasonal festivities and family celebrations.	Languages– Latvian language and literature. Arts – music, literature, visual arts. Humans and society - social sciences, ethics, sports. Science and technologies - housekeeping, handicraft, maths.

According to the learning and educational theories, which emphasise the necessity of direct, immediate experience in the learning process (Dewey, 1997; Eratuuli, Sneider, 1990) and according to the theoretical guidelines which focus on the necessity of collaboration for creating positive learning environment (Anspoka, 2007; Maslo, 2006), in *the procedure part* of the model it is important to use the teaching methods, methodological means, learning forms, self-control and control tools, which activate and control the individual's exploring, emotional and social activities for learning traditional culture and are oriented towards active, systematic *teacher, student, family, society* interaction and collaboration between each other.

The result of this model for regional traditional culture studies is an individual's gnoseologic, axiologic, communicative and creative personality potential's development (Eratuuli, Sneider, 1990; Sebba, 1991; Siliņa-Jasjukeviča, 2011b):

- one's knowledge about regional nature and cultural environment, society as the bearer of traditional culture, Latvian language and the dialects, regional folklore and traditional skills,
- awareness of values based on understanding of the regional traditional culture content, its recognition and further development in the daily activities,
- capability to form one's self-reference about the acquired traditional culture for oneself as a personally important phenomenon,
- capability to apply regional traditional culture in the daily activities in a creative way, making oneself aware of his/her own contribution to sustainable regional traditional culture development.

To facilitate the preservation of cultural heritage, it is necessary to activate the functional and symbolic meaning of cultural traditions nowadays in the opinion of culture users. Individuals who continue social life activity from one generation to other is the main aim and means of nation development.

Conclusions

- Traditional culture as the result of an individual's creative activity is manifested both, in material and immaterial forms – the cultural environment, cultural artefacts, language and dialects, regional every-day and seasonal traditions and the related skills.
- An essential role in the promotion of sustainable Latvian regional traditional culture plays purposefully organised cultural education. To implement sustainable traditional culture studies a *didactic model* can be used, where the following structural components are emphasized:
  - *spatially objectful surroundings* or the place of traditional cultural presentation – ***nature and the socio-cultural environment***, under influence of which the factual and procedure part of the model is being implemented.
  - ***the content of regional traditional culture (the factual part of model),*** which is selected according to the calendar events (seasonal festivities) and includes celebrations related to the changes in one's social status (family celebrations) as well as learning of every-day traditions.
  - *intrapersonal communication*, which is implemented through various interactions and collaboration among ***teacher ↔ student ↔ family ↔ (the model's procedure part).***
- Any individual confirms regional traditional culture as an important phenomenon for oneself through gnoseologic, axiologic, communicative and creative activities.

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ECOLOGICAL LITERACY FOR A SUSTAINABLE FUTURE: PROPOSAL OF AN "ECO-SOCIOLOGICAL MODEL"

Filiz Yıldırım[1] Dr.; **Şengül Hablemitoğlu**[2], Dr.
Ankara University, Faculty of Health Sciences, Department of Social Work, Turkey[1-2]
filizyildirim06@hotmail.com[1]; hablemit@gmail.com[2]

Abstract: As the world continues to run out of clean air, water and space, it will be all the people who experience the consequences at a global scale. Human survival depends on conserving the natural resources, abating widespread environmental pollution, addressing climatic issues attributed to global warming and, ultimately, creating a sustainable future. Sustainability provides the conservation, protection, and regeneration of resources affecting the future of human health and well-being, the environment and the economy. In order to achieve this, people need to have the knowledge of ecological principles, concerns for a healthy natural environment and skills to engage in environmentally responsible behaviours. In this context, ecological literacy, referred as the ability to use ecological understanding, thinking and habits of mind for living in, enjoying, and/or studying the environment, provides the incentives for the people. This paper focuses on explaining how ecological literacy affects creating a sustainable environment/future and proposes an "Eco-Sociological Model" developed from N.Stanger as an education model for ecological literacy at schools. The model contributes to understanding of ecological influencers/ecosystems (nano, micro, meso, exo, macro, chrono) surrounding humans growing up within social environments. In this age of environmental crises such as air and water pollution, the use of this education model at schools is important in terms of bringing up ecologically literate young people as an investment for a sustainable future through a true ecological lens.

Keywords: Ecological literacy, environment, sustainability, school.

Introduction

As the world continues to run out of clean air, water and space, it will be all the people who experience the consequences at a global scale. This is the confrontation of mankind with the sad truth that has been mentioned by scientists for years but ignored due to the hunger for prosperity and wealth. If the indifference towards the environmental protection persists in this way, mankind will most probably face many more disasters. The underlying reason for all these is people's ravaging the environment and mercilessly abusing the nature for their own interest. As a consequence of mankind's actions, many environmental problems such as climate change, biodiversity and deforestation that threaten not only our lives but also the lives of future generations and all other generations stand against and challenge us (Erten, 2004).

Through the 20th century, many scholars and organizations addressed the issues of sustainability because of environmental problems. For a sustainable future, we need to understand that the damage we are inflicting on our atmosphere, water, and soil may be irreparable; and to realize that human behaviour needs to change if we are to sustain our quality of life on Earth (Education for a Sustainable Future, 2000). Seen as a way for sustainable future, environmental education became one of the most important topics to be discussed about in order to contribute to the development of ecological literacy.

Methodology

This paper as review article focuses on explaining how ecological literacy affects creating a sustainable environment/future and proposes an "Eco-sociological model" adapted from U.Bronfenbrenner (1986) by N. Stanger (2011) as an education model for ecological literacy at schools.

Results and Discussion

Why is Ecological Literacy for Sustainable Future?

The need of the world and individuals to maintain their existence in a harmonious balance with their own living conditions has taken the lead in the development of the idea of sustainability (Estes, 1993). According to World Commission on Environment and Development sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs (Report of the World Commission on Environment and Development, 1987). In the light of the description, sustainability is possible with sustainable decisions made now and in the future, and today's decisions affect the future of human health and well-being, environment and the economy.

According to Manitoba Education and Training (Education for a Sustainable Future, 2000), sustainable development depends on a sustainable human health and well-being, the environment and the economy. As a component of sustainable development, sustainable environment is the one in which the life-sustaining process and natural resources of the Earth are conserved and regenerated. Decisions or changes related to sustainable environment have a significant impact on the other two components and on our quality of life. Therefore, sustainable future entails sustainable decision making for sustainable environment. Sustainable decisions can be made by individuals who have the knowledge of ecological principles, concerns for a healthy natural environment and skills to engage in environmentally responsible behaviours. In this context, ecological literacy, referred as the ability to use ecological understanding, thinking and habits of mind for living in, enjoying, and/or studying the environment, provides the incentives for the people (Bruyere, 2008).

Ecological literacy, or the term "eco-literacy" used first time by American educator David W. Orr and physicist Fritjof Capra in the 1990s, is a way of thinking about the world in terms of its interdependent natural and human systems, including a consideration of the consequences of human actions and interactions within the natural context (Ecological Literacy, 2011). Ecological literacy means that individuals have knowledge about how the natural systems on the earth work and how the effects and relationships of human actions to these systems are shaped. In other words, ecological literacy helps recognition and evaluation of environmental problems, understanding individual responsibilities, developing skills to take precautions and gaining habits to minimize the problems about use of natural sources and environmental pollution. Besides, ecological literacy also means development of habits, attitudes, skills and knowledge that ensures the individuals to establish positive relationships with environment and that contributes to the sustainability of this relationship in daily and a long term basis. In this sense, ecological education is a must in order to train members of society who are aware of living in a healthier environment, the sustainable use of natural sources and the necessary caution while consuming for the needs of future generations (Teksöz, Şahin, Ertepınar, 2008; Wooltorton, 2006).

An Eco-Sociological Model for Ecological Literacy

The development of "ecological literacy" is one of the main steps to be taken in solving environmental problems and creating a sustainable future. Starting from pre-school, individuals should be given education in each stage of education system in order for the development of ecological literacy. In this research, we propose "Eco-sociological model" adapted from U. Bronfenbrenner (1986) by N. Stanger (2011) as an education model for eco-sociological model literacy at schools. According to U. Bronfenbrenner (1986), starting from the birth, various environments surrounding individuals have profound effects on their lives. U. Bronfenbrenner (1986) states within the scope of *ecological theory* that there are environments surrounding individuals such as microsystem, mesosystem, exosystem, macrosystem and chronosystem (Figure 1).

Microsystem refers to social and physical environment and deals with close physical range in relationships among individuals and natural processes in the immediate environment of individuals. According to U.Bronfenbrenner, microsystem means the complex relationships between human development and environment and the structures that surrounds and shapes individuals. In microsystem, therefore, individuals are directly influenced by their roles, activities and interpersonal

relationships related to the closest systems such as family, peers, relatives and school. *Mesosystem* consists of interdependent settings that include interaction of several microsystems and development of individuals.

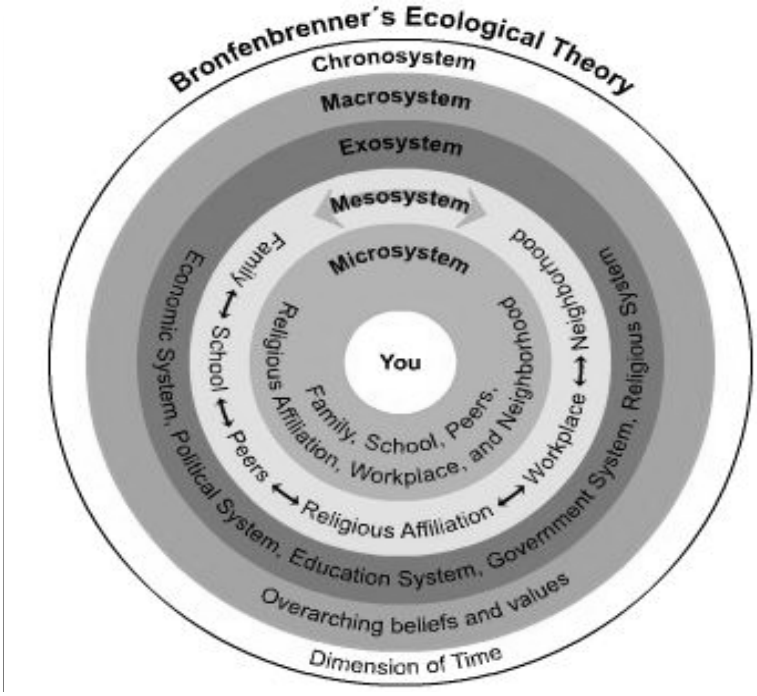

Figure 1. U. Bronfenbrenner's ecological theory (Adapted from Berger, 2007).

Mesosystem establishes a relationship network among various microsystems in individuals' lives. Some microsystems may be closely or remotely dependent to others such as family-school, school-music club and school-sport team.

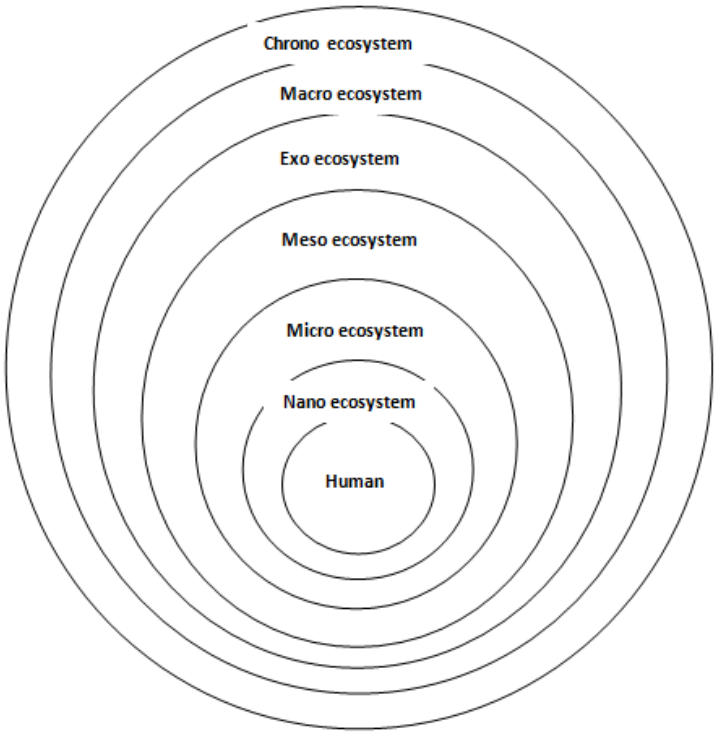

Figure 2. N.Stanger's eco-sociological model (Stanger, 2011).

Exosystem is an extension of mesosystem. This system has an indirect influence on individuals' environment and social systems such as political decision-making and business words are included in this system. In *macrosystem*, however, culture, values of society, traditions, belief system, lifestyle,

opportunities and sources are reflected on micro, meso and exosystems and may indirectly shape individuals lives. The *chronosystem* includes events impacting on particular birth cohort and occurring in the context of **passing t ime** (Bronfenbrenner, 1986). N.Stanger (2011) developed an eco-sociological model (Figure 2) for ecological literacy in schools based on these environmental systems in U.Bronfenbrenner's (1986) ecological theory.

In eco-sociological model, ecological literacy is discussed at the level of "nano", "micro", "meso", "exo" and "chrono" ecosystems. *Nano ecosystems* represent almost invisible types and components that affect health, metabolism and biochemical compounds that are essential for life. In this sense, external factors like nutrition and stress affect human body and health. *Micro ecosystems* refer to the immediate social networks like family, peers, friends, and enemies as well as the environmental enemies like weather, immediate green space, aesthetic of neighbourhoods and local food systems. The conditions in environment where individuals live, for example weather conditions, may lead to differences in their states of health and general well-being. *Meso ecosystems* are associated with the integrity of the local ecosystems as they are interrelated to social systems. According to this, the integrity of the local systems needs to be understood at the community level such as access to green-space, waste disposal, food production/importing, integrity of water systems and biodiversity because functioning community level ecosystems will have positive influence on life or health. *Exo ecosystems* refer to broader systems like governmental and political systems, economical systems, religious systems and ecological systems.

All of the systems entail understanding the influence of biomes, oceans, and ecosystems' integrity on human health. *Macro ecosystems* refer to the "Earth" affecting all the other system levels mentioned above. Within this scope, physical and mental effects such as climate change, unsustainable development, habitat loss and mass extinction on human life and earth may be taken into account. *Chrono ecosystems* refer to the influence of passing time on environment and human life via all the systems mentioned above (Stanger, 2011). Discussing ecological systems from these levels is important for the youth to easily understand positive and negative effects of changes occurring in every level of ecosystem on environment and human life and to be ecologically literate by making correct ecological connections. However, ecologically literate people have the *knowledge* of ecological principles, *concerns* for a healthy natural environment and skills to engage in environmentally responsible *behaviour*s. They are responsible and lifelong learners. In order to accomplish these characteristics, they try to become inquirers, reflective learners, intelligently self-directed, a morally responsible people and also ecologically responsible people (Puk, 2002). With these characteristics, an ecologically literate individual understands environmental realities by specifically identifying their cause and effect relationship and also provides for the shift to an ecological paradigm by affecting other people. This shift to an ecological paradigm is the part of a transition to sustainability. This means that not only meeting basic needs but also creating a vibrant society becomes very important (Ecological Literacy, 2011).

The education of ecologically literate youth in school settings now and in future depends mainly on ecologically literate families and teachers. Therefore, it is also necessary to give education to families and teachers on ecological literacy. For example, the Turkish Foundation for Combating Erosion Reforestation and the Protection of Natural Habitats, whose acronym is TEMA in Turkish, first implemented Ecological Literacy Teacher Training on 18 – 30 September, 2011 as a part of the protocol signed with Turkish Ministry of National Education, the Department of In-service Training. 64 teachers from 30 different cities participated in the training. II. Ecological Literacy Teacher Training was achieved with the participation of 72 teachers from 32 cities and Cyprus, including pre-school and primary teachers. The training programs were implemented by 12 trainers including 5 instructors, 2 members from TEMA Foundation Science Board and 5 Non-governmental Organization representatives. The 77 hour program was created with PowerPoint presentations, fieldworks, workshops and group works. The teachers had the right to arrange both daily trainings and "Local In-service Training" in their cities as a result of the 77 hour program coordinated by Ministry of National Education General Directorate of Teacher Education and Training and TEMA (Ekolojik Okuryazarlık Öğretmen Eğitimi, 2011). Although ecological literacy teacher trainings in Turkey is a late attempt, it is of vital importance in terms of educating ecologically literate individuals.

Conclusions

Ecological literacy is an important in order for ecological learning to occur in pre-school, primary schools, high schools and college level for a sustainable future and in terms of development of potentials of the youth in this sense. The youth who graduate from the school as ecologically literate will be important role models for future generations. Therefore, education given for the development of ecological literacy in schools is crucial. In this study, we suggest the use of eco-sociological education model. The youth will learn thinking together with critical, creative and caring thinking through "micro", "meso", exo", "macro" and "chrono" ecosystems systems. In this sense, skills, values and practices of ecological literacy are "basics" for sustainability. It will be possible for the youth to be able to understand natural processes enabling life or to present knowledge, skills, attitude, values and understanding for nature thorough this model. The youth who receive ecological literacy education will become individuals who can critically examine nature and natural events, develop ideas for solution of problems and do researches and inquiries in this direction. It will be possible for the youth to develop ecological awareness, learn the principles of nature and establish a positive relationship with nature. Individuals will be sensitive to environmental problems and look for solutions, defend environment rights and, in short, become ecologically literate for creating sustainable future.

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

IMPACT OF FAMILY NON–MATERIAL CAPITAL ON EDUCATIONAL COMPETITIVENESS OF ECONOMICALLY DEPRIVED STUDENTS IN LATVIA

Ieva Kārkliņa Mg. oec.
Institute of Philosophy and Sociology, University of Latvia, Latvia
ieva@petijums.lv

Abstract: The purpose of this paper is to identify aspects of family non–material capital that positively influence educational competitiveness of economically deprived students in Latvia and realise opportunities to increase them through building social resilience of economically deprived low achievers. The data from OECD PISA 2006 (*Programme for International Student Assessment of the Organisation for Economic Co–operation and Development*) on students' educational achievements in science and factors affecting them are analysed. In accordance to research results, there are a certain number of socially resilient students – children from economically deprived families who despite of all difficulties and problems caused by the material deprivation are capable to meet the high educational achievements. Information and communication technologies, including software for learning, books useful for school and classical literature at home are factors of family cultural and human capital that can help to reach higher educational competitiveness for socially non–resilient students – those who cannot overcome negative impact of family material deprivation on their educational competiveness.

Keywords: family non–material capital, educational achievements of students from economically deprived families, social resilience, OECD PISA 2006.

Introduction

Today's children are adults of tomorrow… The study results confirm that a significant proportion of children from economically deprived families throughout their lives become economically deprived adults – children are dependent on their families and family events and recourses affect them most directly.

Despite the fact that impact of education on children from economically deprived families sometimes is evaluated controversially (for example, Bourdieu's notion of the social elimination function of educational system ensuring with determined mechanisms that lower social class representatives are excluded from participation in higher levels of education) (Bourdieu, 1977; Bourdieu, Passeron, 1990), noticeably major part of research demonstrate that achieving of education promotes social mobility (Beller, Hout, 2006), reduces poverty and social exclusion (Trapenciere, Rungule, 2000; Rungule, Kārkliņa, 2009), thus education serves as critically important tool for termination of poverty cycle, that positively impact not only the individual, but also the quality of life for the next generations (PISA 2006 Science Competencies…, 2007; Against the Odds…, 2011).

Educational performance is closely related to family socio–economic status and the fact that students from low–income families more likely to have low educational competitiveness than their peers from economically advantaged families, have been confirmed in many research projects conducted during past fifty years (Coleman, Campbell, 1966; Barton, 2003; Geske, Grīnfelds, 2007, PISA 2006 Science Competencies…, 2007; Against the Odds…, 2011). For example, data from Programme for International Student Assessment of the Organisation for Economic Co–operation and Development (hereafter – OECD PISA 2006), on which are based analyses in this article, demonstrate that there are statistically significant differences in students achievements according to family socio-economic status.

OECD PISA 2006 results undoubtedly well confirm that large part of the students who've got low results at the tests provided during research come from economically deprived families (PISA 2006 Science Competencies…, 2007; Against the Odds…, 2011). But there is some proportion of students whose achievements are showing the opposite relationship – the ability to reach a high educational performance despite the lack of family financial resources. The situation of these indistinctive, socially resilient students shows that it is possible to challenge the rules of educational excellence and provides with the information about the opportunities to develop competencies to promote social resilience for students who share the same material situation to reduce risk of social exclusion (Rutter, 1990;

Masten, Coatsworth, 1998; Murray, 2003; Masten, Powell, 2003; PISA 2006 Science Competencies…, 2007; Against the Odds…, 2011).

Both theoretical research and empirical analysis of social resilience in education reveals a number of family level factors that may have a positive impact on low–income students' ability to overcome the expectations about their low educational achievements. However, most of the studies on social resilience are conducted in the USA. While the significant factors that affect the formation of social resilience are determined by culture, educational and economic system, social flexibility in different countries may have different determinants.

Therefore, the purpose of this paper is to identify aspects of family non–material capital that positively influence educational competitiveness of economically deprived students in Latvia and realise opportunities to increase them through building social resilience of economically deprived low achievers.

Methodology

Database of OECD PISA 2006 is chosen due to the aims and extent of the project. The goal of PISA 2006 was to assess student performance, focusing on competency in science, and to collect data on the student, family and school factors for in – depth analyses to explain differences in the achieved results in knowledge tests.

Target group of OECD PISA are students over the age of 15 – majority of them – at the last grade of primary school. In general, the main study sample in Latvia consisted of 5174 students, in study participated 4719 students from 177 schools.

Quantitative data analysis performed within this article is based on comparison of two groups of students from economically deprived families – socially resilient and socially non-resilient, thus established dependent variable in the analytical framework is dichotomous. According to author of article, this approach highly successfully reveals the family factors that distinguish students of one group from the other and elements that could help to socially non-resilient students achieve better educational competencies despite the critical economic situation in the family. More detailed overview about calculation of social resilience is described at the author's article (Kārkliņa, 2012)

In order to assess the family factors influencing students' educational resilience and realize those, who can help to non–resilient students improve their results despite family economical capital, within analysis of this article there were used measurements that characterizes resources of family economic, educational and cultural capital as developed by OECD researchers (PISA 2006 Technical Report, 2009):

- measurements of WEALTH index characterized by family welfare and economic capital – whether the student has a desk at home for learning, his/her own room, internet connection, washing machine, VCR or DVD player, bicycle, snowboard, photo camera, mobile phone, TV and computer;
- measurements of HEDRES index – availability of educational assets/recourses for improving of human capital at home – desk for studies, peaceful place to study, a computer that you can use for training, training for computer software, his (or her) own calculator, school work useful books, vocabulary;
- measurements of CULTPOSS Index – the availability of cultural capital at home – whether classical literature and poetry collections are available for students at home;
- measurement of HISCED Index – parents level of education – as one of the most important elements that characterizes the family human capital, and in addition (taking into account the main field of the PISA 2006 research – natural sciences), "parents' profession is related to sciences" for determination of factors that affect rate of social resilience.

Data analysis was initiated using descriptive statistics (frequencies, arithmetic averages) and correlation (Chi–square) method for determining family factors as independent variables.

To predict possibility of non–resilient students to become more resilient in education, method of binomial logistic regression was implemented. The choice of method was defined by the nature of

dependent variable and contrast comparison (resilient/non–resilient students). Binomial logistic regression is optimal principle of modelling in case of dichotomous dependent values (Hosmer, Lemeshow, 2000). In the scope of research on social resilience the explaining function of binomial logistic regression is operative, because the objective of modelling, in this case, is to obtain understanding about family factors, that contributes belonging to one group or another, and explains why some students sharing the same socio–economic conditions can achieve higher educational performance, but others cannot (Hosmer, Lemeshow, 2000).

Coefficient of determination R^2 characterizes how well the model matches to the data when describing the model correspondence in the linear regression. Unfortunately, this coefficient is not applicable in the binominal logistical regression due to the dichotomous dependent variable. Therefore in this analysis of PISA 2006 data other coefficients are applied – Cox & Snell R^2 and Nagelkerke R^2, value of which, like the R^2 varies from 0 to 1. Reading logit regression equation coefficients, in further analysis Exp (B) coefficients are used, which shows the changes in the probability when independent variable is changed per unit (if the ratio Exp (B) is greater than 1, the correlation is positive, if less than 1 – the negative) (Garson, 2011).

Results and discussion

According to the estimations of social resilience within PISA 2006, obtained choosing from all students a one third with the lowest index of family socio-economic and cultural status and the highest achievements in science, 7,4% of all students in Latvia can be considered to be resilient in education - students who come from low-income families , but able to reach high educational performance. The students who are unable to cope with a negative impact of critical financial situation in family on their education, as evidenced by cognitive test results, are twice as many – 15,6% (Kārkliņa, 2012). Thus, it can be concluded that in general every fifth of all low-income students can be classified as socially resilient (23%), while almost half of the students who share the same economic situation gained the lowest results in PISA 2006 and in the article is analysed as a peer group - socially resilient students (47%).

The literature and previous studies clarifies that the mother and father education strongly correlates with the child's educational achievements (Fuller, Singer, 1995). Parents with higher levels of education are better prepared to support the process of their children education; they have a greater understanding of the education system, as well as the confidence that their children will have to obtain the highest possible level of education (Bebriša, Ieviņa, 2007).

Recognizing the importance of education and its impact on the children's future, parents are willing to invest in children’s education and at the same time expect a positive educational outcome. And according to literature parents' expectations and interest is one of the most important factors promoting students achievements in the primary education (Bandura, Barbaranelli, 1996), especially in the deprived and socially disadvantaged families (Buchmann, 2002; Buchmann, Dalton 2002).

By acquainting the student responses on parental education in OECD PISA 2006 can be found similar tendencies - a higher level of low-income parents’ education have a positive effect on students potential of social resilience potential in education - the ability to reach high achievement despite the critical economic situation in the family.

If only 3.2% of socially resilient students have parents’ who reached an education that is no higher than the primary, then for the group of socially non-resilient students those whose parents got only primary education were more – 8,7%, and some of students admitted that their parents have only incomplete primary education.

With analysis of availability of various family welfares, cultural and educational resources at home, several distinct differences between groups of low-income students could be observed. The survey data show that the low-income high achievers more likely than low-income low achievers has a variety of resources at home that can make the learning process easier and more attractive - computer for learning purposes (respectively 61% and 36%) and computer software appropriate for education (46% and 24%). Variability reflects the fact that unavailability of information and communication

technologies at home could be the one of high risk factors influencing the low educational achievements, but such visually noticeable and social status affirming things as a mobile phone or parent's car does not show a significant impact on student achievements.

Thus, the family cultural capital is analysed by researchers together with financial and human capital (parents' education, education resources available at home) in context of different forms of family capital (Coleman, 1988; Bourdieu, Passeron, 1990). It should be taken into the consideration that family cultural capital is largely based on the two types of capital above (Bebriša, Ieviņa, 2007) and is associated with parents' cultural level, the cultural resources available at home and participation in cultural activities that have a positive impact on children's educational attainment (Teachman, 1987).

Comparing the cultural resources available at students' home significant differences in availability of classic literature and poetry were found within the PISA 2006 research - socially resilient students (literature: 77% poems: 80%) of these resources at homes have significantly more likely than socially non-resilient students (literature: 53%, poems: 66%). Similar relationships can be observed by analysing the number of books available at students homes - if almost half (48%) of socially resilient students noted that they have at home more than 100 books and one in ten of this group of students - more than 500, then from the socially non-resilient students only 23% mentioned that they have at least 100 books at home.

Several factors of family cultural and human capital that can significantly promote the perspectives of socially non-resilient students to reach higher educational achievements and to proceed to groups of socially resilient students were disclosed within estimations of binominal logistic regression (Table 1)

Table 1

Promoting social resilience in education through family capital: perspective for economically deprived low achievers to become socially resilient

Economic Capital	**Exp (B)**
Recourses characterising the welfare at household (elements from WEALTH index)	
VHR or DVD recorder	0,388
mobile phone	1,462
Human Capital	
Higher reached educational level by students' parents (elements from HISCED index)	
parents professional carrier related to science	0,374
Educational resources available at a household (elements from HEDRES index)	
computer software for learning	3,221
books appropriate for learning	2,558*
Cultural Capital	
Cultural resources available at a household (CULTPOSS)	
number of books at home	1,003
classical literature	2,543
anthologies of poetry	0,343

Source: Author's calculations, using OECD PISA 2006 data (note: $p<0,05$, * $p=0,066$).

According to realized estimations, availability of computer software for learning purposes at home increases for 3 times prospects of socially non–resilient students to enter in group of socially resilient students. Books as educational and cultural resources have significant impact as well – if academically unsuccessful student could have an access to books suitable for learning purposes and classical literature at home, it would increase his opportunities to become academically successful for 2.5 times.

The created binomial logistic regression model can be evaluated in a high quality, evidenced by the relatively high coefficients of model impact Cox & Snell R2 = 0,487 and Nagelkerke R^2 = 0,681 as well as the accuracy of prediction – 88% (correctly identified: 78% of socially resilient and 92% of socially non–resilient students).

These data confirm that socially resilient students come from families that despite the limited economic resources pay more attention to educational and cultural resources access at home, with that attitude promoting social resilience in their children and the development of competencies that can help them obtain high educational achievements.

Although the OECD PISA 2006 results do not provide a precise explanation, but results of other researches conduced within the field of social exclusion which are realised with the participation of article author, make the assumption that one of the critically important aspects in the process of building the family non-material capital is the length of family's poverty and social exclusion experience (Rungule, Kārkliņa, 2009; Trapenciere, Rungule, 2000).

Families who have experienced substantial decline of family economic capital in the recent past, are able much easier to compensate it by transformation of their human, cultural and social capital accruals (higher education level of parents, cultural and educational resources at home) than those of the families who have very limited financial resources for the very long period of time. These findings most directly relates to the poverty cycle approach (Payne, 2005).

Situational poverty characterizes families who had recently get into the poverty as a result of some specific event, which led to deterioration in the economic situation of the family (some of family members suddenly lost his job, became and disabled person), pre–established human and cultural capital accumulation allows relatively successfully compensate the material deprivation. Contrary for participants of generational poverty whose cycle is repeated from one generation to the next with a certain behaviour models and culture of poverty, rather doubtful is ability to get them out of it and often require external assistance.

Considering the experience of continuity poverty, it is critically for all agents involved in educational system to pay attention on the school–level factors which could compensate the problems related with material deprivation in family. Directly targeted support for excellent students from families with low socio-economic status could positively affect the accessibility to education for these children, hence – increase the educational outcomes. While support for economically deprived low–achievers to improve their performance could help prevent their „thrown out" of the education system and labour market and the related negative effects on individual and national level.

Conclusions

- According to the author's calculations of social resilience indicators 7.4% of all Latvian students or 23% of all poor students can be considered to be socially resilient – those who, in spite of the critical socio–economic situation of the family are able to obtain high achievements. Unfortunately, almost half of poor students (47%) or 15% of all Latvian students should be defined as socially non–resilient – unable to overcome a material deprivation of family which has negative impact on their achievements and educational competitiveness.
- Analysis of OECD PISA 2006 survey data provides the similar relationship to the knowledge from scientific literature on the findings of family human capital impact on children's educational achievements and the ability through this form of non–material capital to compensate material deprivation. Parents of OECD PISA 2006 students who can be classified as socially resilient have a higher level of education than parents of socially non–resilient students. Socially resilient students have wider access at home to information and communication technology resources necessary for education – computer and learning software as well.

- The OECD PISA 2006 survey data shows the positive relation between family cultural capital and achievements of children from economically deprived families – for socially resilient students more often at home are available books suitable for learning and classic literature.
- In binomial logistic regression calculations, it was concluded that more students that have the cultural and educational resources have a significant impact on the poor academically unsuccessful students' opportunities to get into academically successful group. One may find that availability of computer software dedication for learning at home increases chances of entering into area of students of socially resilient group by more than 3 times, classical literature and books useful for learning increases chances for entering into group of socially resilient students by 2.5 times.
- In order to understand the determinants of economically deprived students educational performance according to guidelines of capital theory (Bourdieu, 1986; Bourdieu, Wacquant 1992; Meņšikovs, 2009), it should be comprehended that in order to reduce the impact of material deprivation and constraints of economical capital to promoting children's' educational competitiveness poor families can operate not only with cultural and human capital available for them, but also with social capital – relationships between family members, agents in education, the nearest community and the state (Coleman, 1988). Issue of social capital is topic with whom author of this article intends to continue the research on family non–material capital effects to economically deprived students' educational achievements.

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SOCIO-ECONOMIC FACTORS IMPACT EVALUATION ON LATVIA ECONOMY DEVELOPMENT

Anita Kokarēviča Mg. Eoc.
Riga Stradins University/ Daugavpils University
anita.kokarevica@inbox.lv

Abstract: The world financial crisis influenced the national economy of Latvia as well. The gross domestic product decreases approximately by 25% during the crisis, the unemployment level rapidly increased and the investments decreased considerably. Nevertheless, by stabilization of the economical situation, starting with the 4th quarter of 2009, the gross domestic product and investments began to increase, but the external environment risks still remain in connection with the future situation development in the Eurozone and by slowdown of the growth tempo in our main trade partner countries. The growth of Latvia's export is stable, however, goods import is growing slightly more, increasing negative trade balance. Latvia's economy has experienced considerable macroeconomic corrections during the recent years. Together with the change of the total economic paradigm it is required to change the sector policies as well so that they would match the modern, up-to-date and actual scientific methods developed by economy theoreticians and approbated in practice for many times. In Latvia, both the society's ageing and depopulation takes place simultaneously. The society's ageing causes changes in the labor force structure and decreases the labor productivity that is why successful achievement of targets set in Latvia's political documents is connected with definite structural changes in arrangement of national economy's resources for benefit of production of goods and services with higher added value, sectors directed to export, bigger investments into innovative technologies and innovation, improvements in education system and science support. Aim of the study: To evaluate the impact of socio-economic factors on the long-term development of the Latvian economy.

Keywords: socio-economic factors, sustainable development.

Introduction

One of the main goals of the European Union is the sustainable development which provides for continuous improvement of quality of life and well-being of present and future generations through the integration of economic development with environmental protection and social justice. (Sustainable development..., 2009)

In order to reach this goal, the effective management and use of all types of resources are necessary. Changes in the global economic structure call for the requirement to learn new skills and competencies. In order to adapt to the changing labor market, one should be involved in lifelong learning programs. To take the full advantage of the human capital being at one's disposal, it is becoming particularly important for the countries to eliminate the structural causes of poverty and inequality by creating equal opportunities for all members of society to participate in social and economic processes.

The economical model has ceased to exist in Latvia, in which the domestic demand that used to be the main driving force of growth has rapidly increased due to the inflow of external capital. Such a model was not sustainable, because it led the economy to deep crisis due to expressed macroeconomical disproportions. Right now, Latvia's economy is transforming into sustainable development model, where the main development driving force is the export, ability to compete in internal and external product markets, as well as to be competitive in capital attraction in order to raise Latvia's productive potential (Ziņojums par Latvijas..., 2012).

The Ministry of Economy has developed the Latvia's National industrial policy, which is based in the latest world practice and approaches, is aimed at the change of economy's structure for benefit of production of goods and services of higher complexity and added value. Within the frames of the Latvian National industrial policy, the modern industrial policy theories by D.Rodrick, M.Porter and R.Hausmann, as well as those by other economy theoreticians, and the frame of nation

competitiveness and regional innovation model were adapted; likewise the EU priorities were taken into account (Nacionālā industriālā..., 2012). Latvia's National industrial policy means activity, which is directed to elimination of market disadvantages and competitiveness improvement, satisfaction of individual sector-specific needs and activation of regional privileges.

By the assignment of the Ministry of Regional Development and Local Governments Affairs, a group of experts guided by the Associate Professor Roberts Ķīlis has developed Latvia's sustainable development strategy until 2030, marking the targets and main activity directions of Latvia's sustainable development (Latvijas ilgtspējīgas..., 2010). Sustainable development facilitates the general welfare of the society and gives people a possibility to live in healthy environment by implementing its potential and skills.

Aim of the study: To evaluate the impact of socio-economic factors on the long-term development of the Latvian economy.

Materials and methods

The study summarizes and analyzes the statistical data of the Latvian Central Statistical Bureau (CSP), the Ministry of Health (VM), the Ministry of Education and Science (IZM), the Ministry of Finance (FM), the Ministry of Economics (EM), the Ministry of Environmental Protection and Regional Development (VARAM), the Cabinet of Ministers (MK), the Employers' Confederation of Latvia (LDDK), the Investment and Development Agency of Latvia (LIAA). Descriptive method was used in the study.

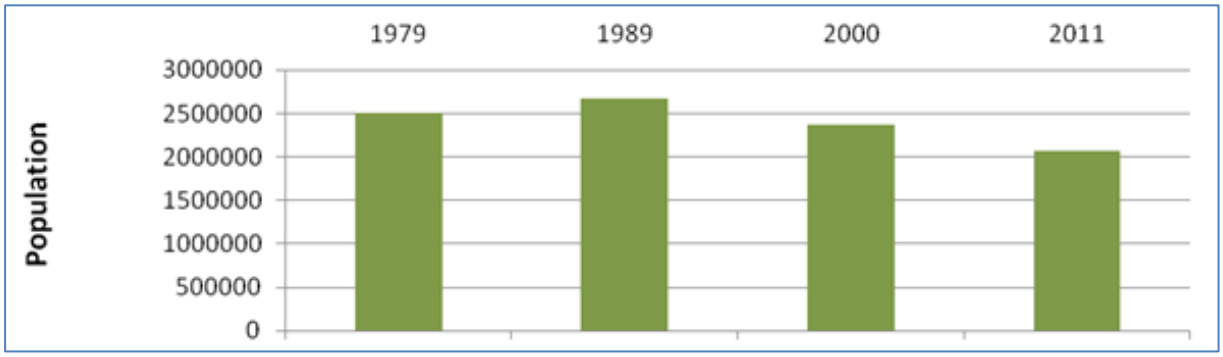

Figure 1. Latvian population to LCSB data (2011.gada tautas skaitīšana..., 2012).

The statistical data show that starting with 1990 the population number in Latvia has gradually decreased (Figure 1). Data of population census of 2011 show that the total number of Latvia's population - 2 070 371 people. It is by 13% or 307 thousand less than in previous population census in 2000.

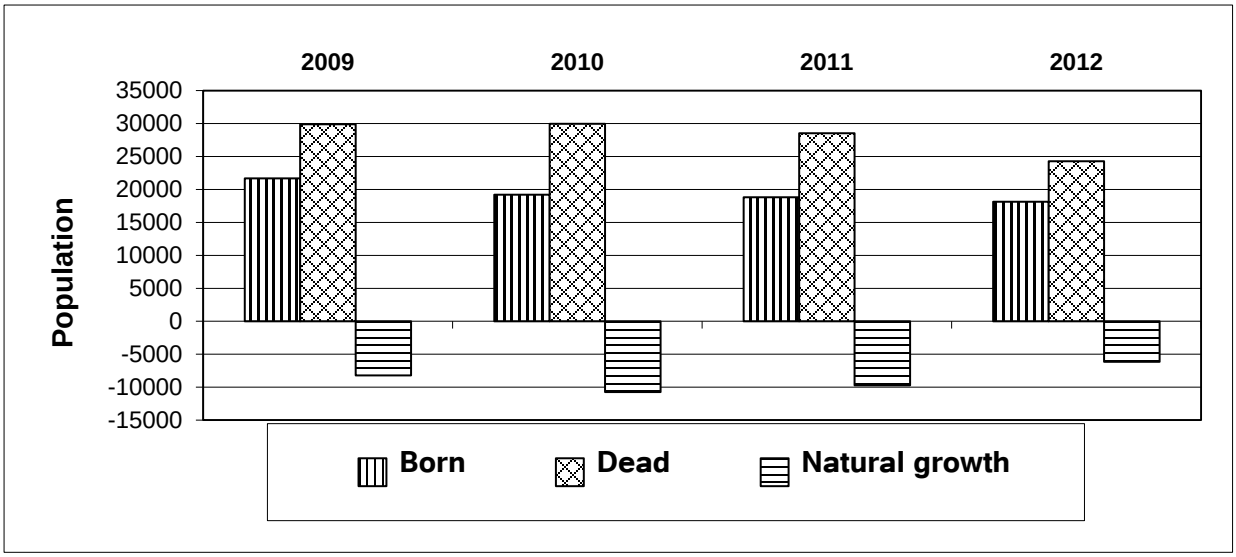

Figure 2. Indicators of natural movement of population number in Latvia according to LCSB data (2011.gada tautas skaitīšana..., 2012).

According to the LCSP data (Figure 2), rates of natural movement of population number in Latvia are:

- Born: in 2009 – 21677, in 2010 –19220, in 2011 – 18825,
  In 11 months of 2012 - 18140 people;
- Died: in 2009 – 29897, in 2010 –29970, in 2011 – 28540,
  In 11 months of 2012 - 24290 people;
- The natural growth of population is negative: in 2009 - (– 8220), in 2010 - (– 10750),
  in 2011 - (– 9715), in 11 months of 2012 - (– 6150) people.

Table 1

The main macro economical rates and forecast by the data of the FM

	2008	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
							forecast
Gross domestic product (GDP), million LVL	16085	13070	12784	14275	15378	16269	17252
-growth in actual prices, %	9.3	-18.7	-2.2	11.7	7.7	5.8	6.0
-growth in comparable prices, %	-3.3	-17.7	-0.9	5.5	5.0	3.7	4.0
GDP deflator (year to year), %	13.0	-1.2	-1.3	5.9	2.6	2.0	2.0
CPI, year to year, %	15.4	3.5	-1.1	4.4	2.3	2.0	2.0
Average monthly gross pay of those employed in national economy, LVL	479	461	445	464	481	498	518
- growth in actual prices, %	20.5	-3.8	-3.5	4.3	3.6	3.5	4.1
- growth in comparable prices, %	4.4	-7.0	-2.4	-0.1	1.3	1.5	2.1
Employment, thousand people (according to the labor force survey)	1124.1	986.7	940.9	861.6	884.3	895.0	906.7
-growth, %	0.5	-12.2	-4.6	-8.4	2.6	1.2	1.3
Unemployment rate (average annual), % of economically active population	7.5	16.9	18.7	16.2	15.1	13.4	11.9

(Galvenie makroekonomiskie..., 2012)

The statistical data of the FM (Table 1) show that starting with 2011 the gross domestic product has increased, on the average, by 9% in a year. The average monthly gross pay of those employed in national economy has increased on the average by 5%. The unemployment rate has a tendency to decrease, but employment in 2012 has increased by 2,6%. The consumer price index is used as an inflation rate, but the GDP deflator allows evaluating the impact of inflation on the state economy in general. The forecast for the next 2 years is positive.

Results and discussion

The way how successfully Latvia's economy will sustainably develop, depends on the capacity of the national economy's internal growth – government's ability to ensure transition from labor intensive economy to science intensive economy and from global development. We can speak of globalization as the modern world's general development tendency and necessity. Still, it has its own benefits and disadvantages. It gives to many countries unique possibilities of rapid development, however, other get threats of economical development and even recession (Boļšakovs, 2008). Taking into account the relatively small economy and internal market of Latvia on international scale, as well as limited resource provision, sustainable development of Latvia's national economy needs economical cooperation with other countries. Already since the beginning of 1990's, implementing gradual reforms and developing cooperation with foreign partners, external economical relations and country's integration in the international economy were facilitated. Still, the world's financial crisis has stimulated the economical crisis in Latvia as well, by negatively affecting the labor market, real estate property market and financial market. As a result of the crisis emigration of Latvia's population to other countries has grown, decreasing the number of economically active population, worsening the demographic situation in Latvia, as well as increasing risk of birth decrease, because mostly young people are leaving the country. According to the population census data, 2067887 people lived in Latvia as of March 1, 2011. It is by 13% less than in 2000. The biggest decrease of population number is in the 23-31 year age group (more than 14%), which is explained by the difficulties of finding a job in Latvia after receiving education, thus making young people leave the country to look for a job outside the country. It is certified also by the statistical rates of the employment, because the unemployment rate (specific weight of job seekers) at the age of 20-29 years is over the average one in the country. In its turn, the specific weight of population at the age of 50-64 years in 2010 constituted 18,5% of the country's population as opposed to children, which were 13,8%. (2011.gada tautas skaitīšana..., 2012. Society's ageing is connected with labor productivity loss and changes in the labor force structure. Herewith it is planned that most part of population will leave the labor market than it will enter it. Ageing considerably impacts the service sector, especially the healthcare, as well as the education sector, because the number of school-age children and young people of student-age decreases. Qualitative employment is ensured by receiving the respective education that is why it is important to implement such life-long education system, which would give a possibility for people to be productive to themselves and to the society for a long period of time, as well as sure that, if conditions change, they would have a possibility to supplement knowledge and skills and be competitive and demanded in the labor market.

If until the middle of the nineties of the twentieth century changes of Latvia's population number were mostly affected by migration, then starting with 1991, as a result of rapid birth decrease and death growth, the population number's natural growth in Latvia was negative. One of the most considerable reasons of low life duration of population is death rate of infants. The Minister of Health Ingrīda Circene has announced the year of 2012 – the year of Mother and Child Health. By the Instruction No. 269 of the Cabinet of Ministers, dated June 19, 2012, the Plan for improvement of mother and child health was approved for 2012-2014. The aim of the plan is to improve health of mother and child, ensuring planned and coordinated event implementation in three directions: improvement of health of mother and child, treatment of infertility and inter-branch cooperation (Mātes un bērna..., 2012). Rates of life length are influenced by the death cases due to external causes.

In the Republic of Latvia, since restoration of independence much has been done –democratic state structure has been stabilized, really functions liberal and open market economy. Latvia has been successfully integrated into the international structures, but it is necessary to establish united policy as

uninterrupted and consequent state long-term development, which would ensure growth of level of society's welfare. The basic factors describing the growth of national economy are – capital volumes, employment rate, productivity level, education level, export and import flow and quality, development of science and technologies, as well as development of innovative entrepreneurship.

From 2005 to 2007, voluminous external capital inflow facilitated substantial growth of private consumption and investments in Latvia. Average annual growth tempo of GDP was 10,3%, which was one of the most rapid in the EU. In 2008 and 2009, under the impact of the financial crisis, when the external capital inflow stopped, recession commenced. During the crisis, the GDP decreased by 25%, unemployment rates in the end of 2009 it reached 19%, number of employed decreased by 16%, real pay of employed people – by 12%. By considerable decrease of budget income, the general government budget deficit in 2009 reached 9%, the external debt almost doubled (Ziņojums par Latvijas..., 2012). Overcoming of economical crises is a global issue. Both the European Union, the USA and other countries fight against it. In the circumstances of economical recession the most important tasks are economy stimulation and ensuring of population's social protection (Stiglics, 2010). In Latvia as the country with rather low income level, poverty is a problem and also one of the reasons of being pushed aside. According to EUROSTAT data, Latvia has the forth lowest specific weight of general government costs for social protection of the gross domestic product (14%), whereas at the average in the European Union it is considerably higher (20,1%).

Since the end of 2009 the economical recession in Latvia has been stopped and the growth has been recovering. The growing risks in the external markets, especially in the Eurozone, in the second half of 2011 and in the beginning of 2012, have not affected the Latvia's economy in a considerable way. The year of 2012 is marked with positive tendencies in Latvia's national economy; however, risks of external environment remain in connection with the further situation development in Eurozone. By slowdown of growth tempo in our main trade partner countries, growth of Latvia's export may become more moderate, and its positive effect on the national economy in general can decrease.

Although many issues connected with the current economical situation are solved in the capital of Latvia, socially economical development of country's regions, to large extent, is in the hands of local governments, economically active businessmen and population. Taking into account that every region has slightly different situation, the Employers' Confederation of Latvia (LDDK) by the support of the Europe's Social Fund, in 2009 has started special project for social dialogue's facilitation on the regional level. Its aim is to raise competitiveness and employment rates of every region in Latvia (Sociālais dialogs..., 2009). Latvia as the member state of the European Union has availability to the financial support of the EU structural funds (SF) and Cohesion Fund (KF), which are the instruments of the EU's regional leveling policy implementation. For the years of 2007-2013 planning period, support of the SF is primarily provided for population education, companies' technological excellence and flexibility, as well as development of science and research, in order to facilitate establishment of knowledge intensive economy in the country and strengthen other preconditions required for sustainable development of economy and improvement of life quality for people in Latvia in general. (Ziņojums par Latvijas..., 2012).

The main aim of development policy of science and technologies is to establish science and technologies as the basis of long-term development of civil society, economy and culture, by ensuring implementation of knowledge economy and its sustainable growth. Latvia's science, research and innovation are an integral and harmonious part of the world science and the European Research space. Although, comparing to other EU member states, in Latvia the state budget financing for scientific activity has been low – in 2010 only 0,6% of GDP, still, until 2015 it is planned to increase it up to 1%. IZM plans to increase the employed number in science and research, establish competitive scientific institutions with modern material and technical provision, to establish the frames for more effective cooperation of scientists and businessmen, perfecting scientific infrastructure, supporting performance of common studies and facilitating technology transfer. The public financing meant for support in 2011–2013 is 69,6 million LVL, including the EU funds' financing 68,1 million LVL (Bāliņa, 2011).

In order to facilitate the economical growth, society's welfare and country's prosperity in general, competitive products with high added value must be created in the world market; it can be achieved by developing the innovation process. The basic principles, aims and results to be achieved of the export facilitation and foreign investment attraction policy are defined by the Guidelines of facilitation of Latvia's goods and services export and foreign investment attraction for 2010-2016. (Latvijas preču..., 2009). The guidelines define three basic activity directions: increase of export competitiveness, availability of support instruments, contractual legal security. Still, Latvia's small and average companies have insufficient financing for development of innovation process, that is why state support is necessary for development of new products and technologies and their introduction into production, as well as facilitation of cooperation between the sectors of research and entrepreneurship. On September 09, 2012 the Investment and Development Agency of Latvia (LIAA) signed 11 contracts with heads of different clusters of national economy sectors, providing for that during the next three years more than 350 united companies, research institutions, high schools, non-governmental organizations and local governments, by their own means, will develop new products, master export market and create the basis for increase of their sector investment in Latvia's economy in the future. The total cluster program financing within the frames of the European Regional Development Fund program until 2015 is 3,4 million LVL (Ar 11 klasteru..., 2012).

Conclusions

- Demographic situation in Latvia is closely connected with the impact of the main resource of Latvia – human capital – on the development of national economy. In Latvia, both depopulation and society's ageing take place simultaneously. Unemployment and low income facilitate emigration, decreasing the number of economically active population and even more worsening the demographic situation in Latvia. Society's ageing causes changes in the labor force structure. By decrease of the number of population able to work in order to ensure economy's growth the productivity must be raised. It means efficient use of resources, increase of output of goods and services with high added value and ensuring of export growth.
- Education quality, availability and content are significant challenges for development of Latvia's human capital. In a long-term prospective, Latvia's competitiveness will depend on the link of education system with the labor market changes and ability to prepare people for life-long work in changeable conditions, that is why solutions should be provided for – how to motivate everyone to get involved in development of one's own human capital and competitiveness.
- For increase of competitiveness efficient cooperation of public and private sector is required, defining the main activity directions and establishing favorable economical activity environment for both the local exporters and the foreign investors.
- Innovation, science and technology development facilitates the productivity growth and these are important factors for Latvia's sustainable economy development, ensuring of society's welfare, perseverance of environment and nature resources, that is why it is necessary to fully master the existing resources and look for possibilities of attracting additional financing.
- Social inequality in a long term considerably decreases the economical growth, that is why the poverty risk analysis should be regularly performed and the social programs should be applied to the needs of specific poverty risk groups.

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CORRELATION BETWEEN EDUCATION AND QUALITY OF LIFE IN FAMILIES OF CHILDREN WITH SPECIAL NEEDS

Iveta Kokle-Narbuta, Mg. paed., doctoral student
Institute of Home Economics, Latvia University of Agriculture, Latvia
ivetakokle@inbox.lv

Abstract: Education is an important part of life and is closely related to social diversity, economic and social rights, as well as to equality. Basic Guidelines of the Family State Policy for the 2011 – 2017 have set a target to develop well-being and stability and support education for families of children with special needs; though the current situation in Latvia is characterized by a lack of understanding of the need to support families of children with special needs which might compensate the impact of disability on family's quality of life (FQoL). Children with special needs have the ordinary requirements children of their age have, as well as the unique and specific needs the particular child inheres. The multidimensional concept of quality of life (QoL) contains all the most important spheres of one's life. QoL is characterized by the available consumption level, variety and quality of social services, a chance to have an education, to live a long and prosperous life, and to take part into social and political activities. QoL is closely related to the country one lives in, and state support for both an individual, and family as a whole. The aim of the article is to identify the resources that affect the FQoL of children with special needs.

Keywords: children with special needs, QoL, family education.

Introduction

Every single person wants to live a prosperous life and to ensure a high quality of life for themselves and their families. Caring for the education for children with special needs has become an action of a national level, in recent years. An evidence of this fact is "Education Development Guidelines for 2007 – 2013" which asserts inclusive education (including caring of children with special needs at the place of education) as one of the priorities (Izglītības attīstības..., 2007). Several European Economic Area Financial Instrument projects with an aim to promote QoL of children with special needs are being implemented currently, yet family education is not being carried out. Basic Guidelines of the Family State Policy for the 2011 – 2017 emphasize protection of family interests and defines five goals of family policy, including family stability and support for carrying out parent responsibility (Ģimenes valsts..., 2011). Family is defined as those people that consider themselves a family, and support and care for each other on a regular basis (Turnbull, Summers, 2007).

The concept of QoL has been explained by several disciplines and each of them has given an additional meaning to the term. The structure and content of FQoL does not vary from QoL of an individual but the indicators are different – FQoL is measured and determined for family as a whole, not for each family member separately. A family of child with special needs has additional responsibilities and a need for additional resources. FQoL can be to a large extent individual for each family depending on its values which are initially inherited but might change in accordance with the living conditions, needs and expectations, over the years. Values – spiritual, material, social – characterize the things that a family considers to be necessary, useful and good in a certain situation; values are among the most important factors determining principles and criteria of choosing a lifestyle. QoL displays the extent to which families are able to meet their needs and fulfil their expectations in accordance with the lifestyle. Family characteristics and dynamics interact with individual characteristics to influence FQOL outcomes (Zuna, Summers, 2010). Family becomes both an object, and a subject of research. The aim of the research is to identify the resources which promote FQoL in families of children with special needs. The Paper shows the difference between families having children with special needs and families having children with no special needs.

Methodology

The study is based on a multifactorial approach to the interpretation of QoL and the concept of family education, derived from a theoretical analysis of studies by N.Zuna, J.Summers, A.Turnbull (Zuna, Summers, 2010), R.Veenhoven (Veenhoven, 2007; Veenhoven, 2008). The Paper describes various ideas substantiated by R. McPherson (McPherson, 1998) whose works include theories on obtaining knowledge and skills to overcome disabilities in the most successful way. The amount of studies on correlation between education and quality of life in families of children with special needs is far to small to predict an improvement of FQoL of children with special needs. To solve the wide spectrum of unique problems which families of children with special needs have to face to, the necessary resources for improving FQoL shall not be ignored. Each family may need different resources to meet the special needs of the child. The analysis of studies on correlation between families of children with special needs and QoL shows that FQoL can be improved by minimizing the impact of special needs which a child has; different kinds of support is needed, both socioeconomic resources, and inclusive social actions. At the moment, not many studies relate to the correlation between family education and QoL, therefore an analysis of differences between comprehension of FQoL in families of children with special needs and families having children with no special needs is going to be made. The future perspective of families of children with special needs is related not only to an ability to adapt the environment, but also to an ability to change their environment themselves.

Results and discussions

French sociologist Pierre Bourdieu suggests using both constructivism, and structuralism approach to explain the concept of QoL. Constructivism emphasizes the role of a subjectively made choice when analysing the actions of an individual; structuralism describes a system that is not dependent on one's will. Only by integrating both theories, the conditions that influence family and define the choices family makes, thus determining FQoL, can be investigated. Bourdieu uses the concept *habitos* to characterize one's skills of socializing, including accumulation of, combining and taking advantage of social, cultural, or other resources to gain a more favourable position in the society (Bourdieu, Wacquant, 1996). In accordance with *habitos* theory, a good FQoL is achieved by families that take an active participation, try to find new possibilities, interact with the society – a successful cooperation can be developed by mutual communication. A family of children with special needs may or may not tend to interact with others, depending on the resources of the family. One's behaviour enables to achieve a favourable social position and accumulate a capital, as a result, only an individual who aims to achieve a prosperous life can succeed (Dzīves kvalitāte..., 2006).

QoL is an indicator of the prosperity of an individual, a family, a group of persons, or a society. It includes physical and mental health, leisure activities, occupation and communication with the society, chances to get an education, rights to make and fulfil individual decisions, as well as financial means corresponding to the social status which is also defined by the indicators of QoL. Researcher Ruut Veenhoven defines QoL as the positive and the negative experience of life. The experience that an individual gets whether by taking the chances of life, or by refusing of them, constitutes the combination of feelings that characterize satisfaction of one's life. R.Veenhoven describes a connection between QoL and the level of contentment (Grīnfelde, 2010). R.Veenhoven has established a matrix of QoL which is determined by the inside and the outside features of QoL.

Table 1.

Matrix of QoL (Veenhoven, 2007,16)

	Outside features	**Inside features**
Life chances	Environment suitability	Life chances
Life results	Life efficiency	Comprehension of Life

Chance to get an experience depends on the individual resources and the resources of one's family. If a family must use all the resources to meet the requirements of the child with special needs, the family has small chances to get an experience, according to R.Veenhoven's theory. FQoL is closely related to the quality of the whole society. Life chances mean possibility for a family to solve their problems;

this feature of QoL is also related to the functional defects of one's body because a good life means a functionally healthy body and mind (Veenhoven, 2007; Veenhoven, 2008).

QoL has many synonyms: life level, good life, standard of life, happy life, satisfaction/contentment with one's life etc. From an objective point of view, QoL is often related only with the material aspects, from the subjective point of view – with a happy or unhappy life, contentment or discontentment with one's life.

The indicators of QoL standard include both well-being and employment, and development, physical and mental hralth, education, recreation and leisure activities, and social identity.

In philosophy, one of the features of quality is definiteness of objects and phenomena, which allows to differentiate between them (Filozofijas vārdnīca, 1974). In accordance with the previously mentioned explanations, quality is related to a combination of certain features, QoL – life which can be assessed by a certain, particular characterization.

Finnish sociologist Eric Allardt describes a relation between QoL and meeting the social needs, and separates level of life from QoL, because level of life, from his point of view, is related to objective parameters, but QoL includes subjective assessment (Allardt, 2002). David Phillips defines QoL as a state of life in which basic and social needs give an opportunity to ensure an individually good life, expand a high level of social integration, carry out social communication, join various organisations, and fulfil other integrative standards, thus ensuring all the physical and social chances that arise from the global development (Phillips, 2006).

QoL has been precisely defined also by state laws and regulations, for example, in Latvian National Development Plan 2007-2013 and in Reports of Commission of Strategic Analysis, a multidimensional meaning has been allocated to the concept of QoL, and it consists of the most important aspects of human life – well-being, safety, sustainability (Stratēģiskās analīzes…, 2007), (Nacionālās attīstības..., 2006).

Latvian Law on Social Services and Social Assistance defines QoL as an indicator of well-being, having an impact on physical and mental health, leisure activities, occupation and communication with the society, rights to make and fulfil individual decisions, and financial independence (Sociālo pakalpojumu..., 2002).

Evaluation of different author's characterizations of QoL leads to a conclusion that the basic statements of different theories are needed to create a full percept of the multidimensional nature of QoL. According to the idea that theories of QoL are still being on their development stage, by Josef Sirgy and D. Philips , studies on education role in QoL are limited, because they do not reflect all the factors that have an impact on QoL (Sirgy, Michalos, 2006; Philips, 2006).

From the author's point of view, QoL is the level of an individual's needs being met in compliance with the personal values. Author considers that, in the course of time, QoL can be promoted and developed in accordance with the personal experience and the level of needs.

Life might be considered to be of high quality if it can give an idea to follow – even a false idea is better than boredom. Human beings are capable of creating material and spiritual assets. A part of one's energy is used to enhance material benefit and take part into the competition to gain prosperity. However, if an individual cares only for material assets, brain soon becomes dull and the result is very often an unhappy state of mind. Only people who are able to combine both material, and spiritual values, those who care about their freedom and who are able to create new ideas might reach a true quality of life (Dzīves kvalitāte..., 2006).

A concept of QoL mainly arises when the existing QoL comes into contact with the desired one, in situations when an individual gets a chance to compare different models of life and get an insight into life of other families. In this case, the *desired* QoL arises, because family has lived into their *existing* QoL till that moment. Different thoughts, conclusions und aims to reach the desired QoL are developed.

To identify the resources promoting FQoL of children with disabilities, qualitative and quantitative methods were used. 40 families having children, from which 20 have children with disabilities, gave answers to questions on QoL; the answers were summarized and analysed.

The average age of the respondents is 26.32. 22 respondents have high school education, 18 – university degree (SD=0.504).

During the research, a model of QoL, developed by E. Allard, was used. The results were structured using three dimensions:

1) *Possess* – related to the necessary economic and social resources including not only material assets, but also education, employment, health etc.;
2) *Be* – related to the social adaptation into micro- and macro-environment (family, small groups, society); this dimension is also connected to belonging to a certain environment and place, as well as taking part into political processes and organisations, and leisure activities;
3) *Love* – related to one's self-realisation, evaluation, intimacy, family and closest group relationship, as well as the overall satisfaction of life.

The research was carried out into two groups to identify the urgency of QoL matters and the differences in understanding of QoL between families having a child with special needs and families with children but having no child with special needs. For the quantitative analysis, IBM SPSS 20 was used. Descriptive statistics' indicators were identified; the statistic criteria were calculated by analysing the understanding of FQoL and family resources (Fig.1). The findings were compared, and integrated conclusions were drawn, thus creating a concept of the resources which might improve the QoL and the level of understanding of QoL. Comparing the answers of families taken part into the research with the approaches to the concept of QoL and its relation to family education by E.Alardt, P.Bourdieau, A.Turnbull, N.Zuna, J.Summers, R.Veenhoven, R. McPherson and others, an analogical view derives. The respondents' understanding of QoL is concentrating to the economic and social resources. Mostly the needs of possess dimension are mentioned: economic resources (52.8%), social resources (47.2. %). This dimension fulfils meets the basic needs of a family and characterizes the factors influencing the use of life chances.

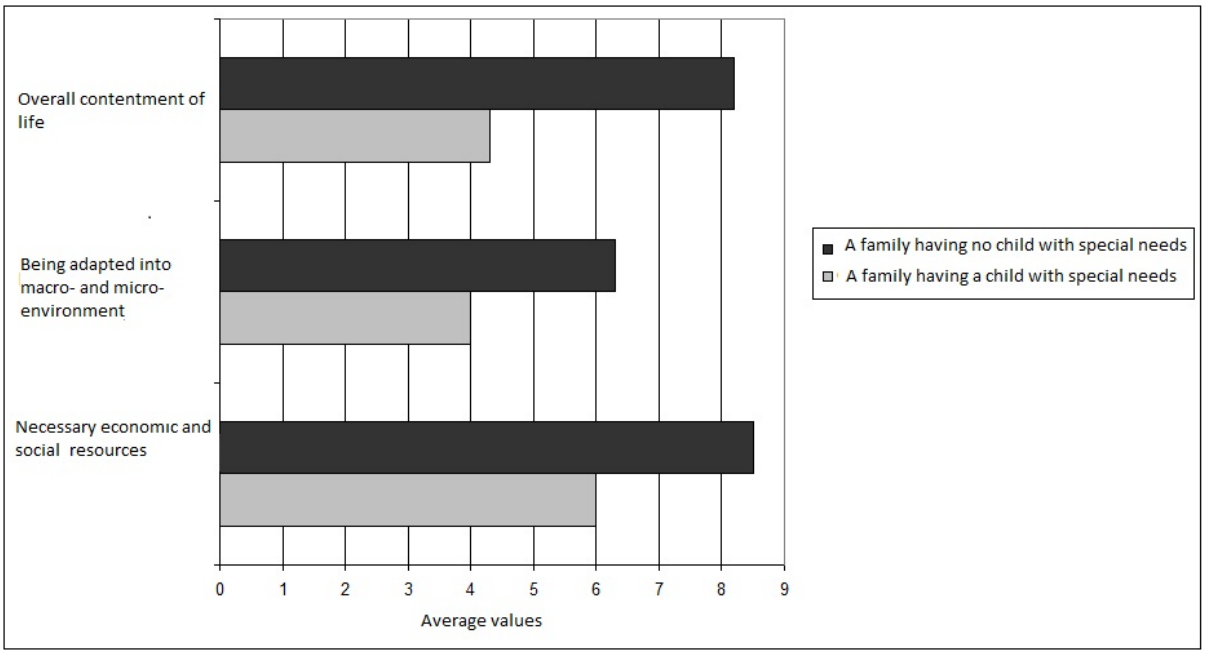

Figure 1. Assessment of FQoL family having a child with special needs and family having no child with special needs.

Statistically evaluating the economic and social resources in families with/without children with special needs, a huge difference among the opinions was not found; the calculated two-sided level of importance 0.99 greater than 0.05.

Respondents' understanding of QoL related to self-realisation and family relationships concentrates to the overall satisfaction of life. Family relationships (64.1%) and self-realisation (35.9%) are the most common answers. Overall satisfaction of life aspect characterizes the concept of a good life.

QoL displays the level to which both individuals and families are able to meet their needs and fulfil their dreams within the chosen lifestyle.

Conclusions

- In recent years, several studies have been developed to display a multidimensional view on QoL, which incorporates not only social and physical content to the actions of family politics, but also the emotional aspects of a family and the meaning of self-realisation.
- FQoL is ususally higher in families who have children with no special needs, because such families do not have to spend their resources to meet the special requirements of a child with special needs. Families who have no children with special needs are more satisfied with their lives. FQoL is influenced by the social system and structure of the society, as well as cultural values.
- QoL is determined by subjective and objective conditions.
- Physical resources are influenced by social contacts; emotional resources are influenced by family relationship and support.
- Material resources only partly determine the QoL in families having children with special needs.
- Education is not as much a component of QoL, rather an instrument to promote it.

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HANDIWORK EVIDENCES OF FOLK PEDAGOGICS AS THE MEAN OF UPBRINGING

Ieva Mīlgrāve, MA Paed., Candidate for a Doctor's degree
University of Latvia, Latvia
ieva.milgrave@gmail.com

Abstract: The aim of the article is to reveal the essence of handiwork, their significance and humane values in the development of personality that are found in folk pedagogics. In the course of years the ideas of folk pedagogics were inherited in work and in social life, in games and in honours, in upbringing and made the all-embracing, universal system of means to upbring and educate children where the special place was for handiwork as well. Compositions of folklore – folk songs, traditions, habits, beliefs, ethnographic materials, archaeological findings, written evidences – have become the sources of folk pedagogics where the essence of handiwork is revealed. The method of investigation is hermeneutics which was used to analyse literature and sources in the history of pedagogics. The article discovers the ideal of a human in the Latvian folk pedagogics, which contain moral, aesthetic and intellectual values. Work and working habit are characterized as the main values of life and at the same time these are considered as the criterion of beauty and the measure of moral development. A child's preparation for life has been investigated in the compositions of folklore which was closely connected with various household works, handiwork and craft. The analysis of folk songs lets to track down the course of development, technical process and major differences of the most widely spread handiwork (spinning, weaving, needlework, knitting) in various regions of Latvia.

Keywords: folk pedagogics, handiwork, folk songs, values.

Introduction

The aim of the article is to discover the essence and significance of handiwork and the humane values in the development of personality which are found in folk pedagogics.

The research Handiwork evidences of folk pedagogics as the mean of upbringing is prepared in the frames of work The historical development of the subject Housekeeping and needlework manual training in Latvia up to 1940.

Methodology

Conformities proved in pedagogical science about the necessity of assessment the historical pedagogical heritage in the perception of present problems – these form the methodological basis of the investigation; about the development of an intelligent personality.

The theoretical basis of the research is formed by the investigations of the necessity of hereditary folk pedagogics and acquired cognitions of folk wisdom (Kr. Barons, J. Anspaks, J. Rudzitis).

The method of investigation is hermeneutics – used for the analysis of folklore compositions and literature in the history of pedagogics.

Hermeneutics means explanation and interpretation of the text. Nowadays explanation-guided hermeneutics is used more often. The cognition of hermeneutics used in the investigation is that the understanding of the text is the mean to come to certain conclusions. Fridrihs Sleiemahers defines hermeneutics as the art to understand the others' speech correctly. Hermeneutics focuses on the essence, on the object of interpretation in its historical, socio-cultural context. It emphasizes the significance of the historical tradition in contemporary culture. (Fedosejeva, 2008) The method of hermeneutics is suitable where the researchers of pedagogical history have the task to understand in their investigation historical texts and their interpretation.

In the research the method of hermeneutics is used to understand and to explain the folk song cognitions, the experience of ancestors and the ability to transfer it from generation to generation. It is essential to find the correct explanation of the text as in many cases the folk life wisdom in folklore compositions is in cipher – in generalizations, in imaginative language and in other means of

expression. The language, the meaning of many words and notions has changed over the years. That is why it is very important to understand the text correctly, to interpret and to express general cognitions.

Results and discussion

Any society had sensed the need to convey the fortune of financial and mental experience from generation to generation with this meant the upbringing. Thus folk pedagogics – which is the part of mental culture – had existed before scientific pedagogics. (Pedagoģijas terminu..., 2000, 123; Rudzītis, 2006, 12)

Jānis Anspaks defines pedagogical wisdom of Latvian people as the experience of common work, communication, cognition and morality, these all formed during the long period of time where mythological and folkloristic points of view and ancient archetype patterns amalgamate with historic destiny, ideas of Christianity and the latest ideological trends. (Anspaks, 2003, 27)

The beginning of pedagogical ideas runs deep into the material and mental culture of the ancient Balts and Liivs. Due to the lack of writing the folklore compositions became the sources for folk pedagogics, they are connected with traditions, customs, beliefs, ethnographic materials. Later on archaeologists' findings and written evidences as well. They let judge about economical and mental life of the Balts living in the territory of Latvia, and about mentality, economical and mental life of the Liivs, their mentality, their ethical, aesthetic and moral ideals and values and the connection of these tribes with the closer or farther countries and nations. (Anspaks, 2003, 23)

Up to now Latvian folklore is considered as the basis of Latvian identity formation on the top of which our contemporary pedagogical science and pedagogical reality of Latvia are being built deliberately or unawares.(Krūze, Ķestere, 2010, 75)

Of all folklore materials folk songs are the main treasurers of pedagogical values.

Working habit – the main value of life

The analysis of folk songs let us deduce that in the course of time the Latvians have created their own ideal of a human. The most important values are attitude towards work, respect against the older generation, humane attitude towards people, cautious attitude towards nature and morally ethical behaviour in the society. The ideal of a man in the Latvian folk pedagogics embodies moral, aesthetic and mental values. (Žukovs, Kopeloviča, 1997)

The attitude towards pedagogical values changes with the lapse of the time yet the common humane character, connection with the common human values – generosity, humanism, democracy, freedom, love, honour, etc. – are preserved. (Rudzītis, 2006)

The never-ending truth has been implanted in the child already with lullabies that only work makes a man great, noble, pretty, honours him and makes him immortal, while the unemployed life leads a man into misery. The work and working habit are considered to be the most important values of life, and at the same time the man's own mental and moral development measure and the criterion of beauty. The folk wisdom teaches that work runs through the whole man's life, his thoughts, feelings, his view on the world.

Work is not only the natural state of a man's life and the condition of his existence, but first of all it is the condition for the man's formation and development. (Anspaks, 2003, 29)

The eyes frightened of work,
The hands are not frightened of work,
The hands are not frightened of work,
They know they will do it. (Barons, Visendorfs, 1894–1915, 6853)

Free, creative, life formative work has always been praised in the folk. Folk ideas are in the basis of working habit. The man's value is estimated by the working skills and working habit, that is the source of wisdom, beauty and joy of living. Together with the working habit the wisdom received from parents and experienced people was highly evaluated.

Farmers' simple lifestyle demanded varied practical knowledge and handicraft skills that is why various „know-how" skills were highly appreciated. The task of upbringing and learning was to prepare economical person.

Teach me, mother,
All kinds of work;
When you have taught me work,
Teach me wisdom. (Barons, Visendorfs, 1894–1915, 6676)

So asks young girl who already realizes that work will be necessary for her.

The main significance was attached to work in the physical development. Work and getting over life difficulties increased a man's physical and mental power.

Work also served for the development of taste and sense of beauty. Defining the ideal of beauty, the worker's outer beauty – slender, strong body, the brightness of jewellery, lovely clothes – it is a complex look at working habit and honour, at the inner beauty of the person. Children from early age had to participate in the creation of beauty. Handiworks were highly evaluated in the family and society, with the help of them it was possible to beautify oneself and the surrounding. Our ancestors appreciated not only the practical meaning of a thing but its aesthetic look as well.

Artfully I dressed,
Slender was my form.
My dress I made myself,
Laima gave my form. (Barons, Visendorfs, 1894–1915, 5305)

Evening works as a way to acquire art handiworks.

Particularly significant form of manual training for teenagers and young people was evening work, which became one of the strongest factors for culture development. This tradition, like for the ancient Prussians, the Lithuanians, the Slavs, the Estonians, turned into some kind of work school for Latvian farmers, where the eldest generation taught youngsters different works, trades and manners. (Pedagoģiskā doma..., 1991)

More difficult and complicated folk craftsmanship skills to the girls were taught by great landladies, experts of patterns and samples, spinners, weavers, calling together girls from neighbourhood. Landlord and fellows prepared tools for spring works during the evening works, made dishes, pastalas and other things for household. The old father with a good sense of humour told about ancient events and helped the young with his advice. The old mother plucked feathers, knitted socks and mittens, told fairy-tales, asked riddles, etc. The experience and wisdom were shared either among the people of one farm or among the people of several villages together during these evening works.

Everybody had got his own work with him, flax plait for spinning, wool tow, knitting, stich craft, etc. Young girls were the most hard working during these evening works, while singing they prepared rich and gorgeous dowry. There was no lack of fellows during the evening works who wound strings, horse-locks, bridle reins, whips, splintered and dried kindlings on the top of the stove, watched over the fire not to be gone out and as a payment for that they got patterned socks and mittens. (Eše, 1929)

Cut splinters, brothers,
Your sisters are coming to do their evening work;
One will get mittens, the other socks
For cutting splinters. (Barons, Visendorfs, 1894–1915, 6958)

Girls gradually acquired the difficult art of handicraft. The smallest ones had to collect worsted endings thrown away by the eldest sisters and had to try to plait in, stitch some simple patterns. Later the small girls started to practise on easier works – knitting, sewing, which were possible to do with simple tools while standing or pasturing. Knittings, bast shoes, hand-woven ribbons were the first works of girls that were sung about in the pasture folk songs.

It was not easy to acquire the difficult art of ornaments – years passed asking and exercising as the ornaments of woollen shawls, waist-belts and bands demanded not only attention, dilligence and stamina but consummated taste and sense of composition as well. Younger sisters asked help from

mothers and elder sisters in acquisition of complicated ornaments so the mother-in-law did not teach them and sinister talks were not heard in the village about the daughter-in-law and her mother.

Great experts- needlewomen are mentioned in the folk songs as the pride of the family, of brothers, their reputation spread far and lured proud people. The praised experts/needlewomen became the unachievable ideal especially for the poor maids and orphans. The girls had to do easier works – they wound bobbins and clews, teased, hackled, spinned flax waste and then woollen yarn. As any work done diligently and sincerely, the simplest handicraft little by little brought up Latvian girls. These works demanded stamina, concentration of physical and mental strength to transfer the game with worsted endings into serious work. It was a big trial for the girls to leave off the game and to focus on serious work and in the folk songs it pretty often was connected with salt tears and suffering. (Eše, 1929)

Rich dowry – the pride of every girl

The life demanded much and the ideals were high. The girl who wanted to enter a good society had to prove the decent working habit. The ideal of the maiden was a rich dowry that was much and far spoken about. Folk songs mention that it had been expensive and heavy even for several horses to be dragged.

Do not let, brothers,
Two carry my dowry;
Let my bridegroom carry it alone,
As l alone made it. (Barons, Visendorfs, 1894–1915, 16666)

The girl's dowry is richly described in folk songs: expensive woollen shawls – forged with silver and even gold, with silk tucks, crested and fringed, the dowry cannot do without patterned socks and mittens. (Eše, 1929)

Many folk songs let us trace the development of spinning and weaving in the course of time. We see how spindles are gradually substituted by spinning-wheels. The weaving technology had been well developed, folk songs give evidence of this, mentioning steep weaving-mills and looms known nowadays.

Latvians were able to weave various ornaments. Folk songs give vast insight into available textile fibres, which were used for weaving and making clothes. Most often mentioned textile fibre from flora are flax, for making clothes also nettle and hemp are mentioned. Though nettle are mentioned ironically, alongside with „thistle gloves", „thorn wrap" and „cane bone gloves".

Both wool and silk are mentioned as textile fibres from fauna. In many folk songs silk is mentioned as not real but imaginary as it was difficult to access. As natural textile fibres were not absolutely clean and white it was necessary to dolly and whiten them. (Auškāps, 1929) Many folk songs urge to do accurate washing and dollying.

Mother pounds the washing, daughter pounds the washing,
My bride pounds the washing;
The crow has gone blind
With all this whiteness. (Barons, Visendorfs, 1894–1915, 7545)

If washing, dollying and whitening manifested as a demand for cleanness then colouring served for satisfaction of aesthetic demands. The tendency to decorate clothes in different colours was so big that art of colouring developed little by little and craft of various colours appeared.

Folk songs give insight how well girls knew various colouring methods and features of plants, they also knew different means of etching. One of the main mean for colouring is wood and these did not grow in the free nature, girls had to grow them in the garden in order to get gorgeous worsteds.

The second way of colouring that was mentioned in folk songs was with bedstraws, it gave yarn and linen different shades of red.

The time which was the most suitable for colouring with bedstraws is contradictory as they were gathered both in spring and during the harvest. May be the stability of colour depended on it as folk songs say that colouring with bedstraws not always had been light resistant.

For colouring girls also used marjoram, club-moss, camomile, heather, alder peel, moss and other plants.

As it was mentioned before the dowry could not go without a woollen shawl. Archaeological excavations in the ancient graveyards of Latvia show that Latvians had known the woollen shawls already in very old times. (Zariņš, 1929)

Depending on the kind of day,
I choose my woollen shawi:
On a sunny day I wear a white one,
On a rainy day a grey one. (Barons,
Visendorfs, 1894 –1915, 5648)

Roses bloom, poppies bloom
On the lido f my sister's dowry chest;
When the lid is lifted,
Then the shawls did bloom.(Barons,
Visendorfs, 1894–1915, 16636)

The analysis of folk songs give evidence that each area had got its own characteristics for making woollen shawls

It was not easy to decorate a woollen shawl, it was the job for experts to do and quite often it was a sign of prosperity. Most lovely the white woollen shawls were described in folk songs.

Differences could be seen in various areas in ornaments, in colours, in techniques for making shawls, hand woven ribbons and waist-belts. Basically two kinds of techniques were used – the simple with comb or roller and with a weaving board. (Dzērvītis, 1929)

In the vast collection of folk songs there is a row of songs dedicated to gloves and socks, that were the concurrent elements of the dowry, the knitter was praised as well. It means that not only weaving but also knitting had the significant place in fancyworks. Gloves and socks had not only practical meaning but symbolic as well. Gloves and socks had the significant role in folk traditions and habits, especially in weddings and funerals.

I am knitting patchy mittens,
Who will get them, who won't get them?
Will it be the cross bearer,
Or the grave digger? (Barons, Visendorfs, 1894–1915, 7210)

It was not easy to deal with this work without good skills and consummated taste. Girls exercised in knitting from early age and it may be said with certainty that knitting were the girls' first handiwork. (Grunvalde, 1929) We can track down the variety of patterns for gloves and socks in folk songs. In the beginning socks were knitted very simply, using woollen yarn or flax yarn. Nettle socks, also silk socks are named in folk songs though these were the same woollen socks knitted from specially soft and fine thread as the silk was known as foreign made product which was difficult to get. White socks for girls were the most beloved, the abundant amount of folk songs gives proof of it. In its turn, masters' sons were wearing long and fine thread socks, but plowmen – short woollen socks.

Mittens were for work in folk songs. As gloves demanded more work and skills they were considered as luxury article and they were worn by wealthy people.

White colour was the most popular for gloves. Yellow, red, green and blue worsteds are mentioned much. Multi-coloured and patterned gloves were wide spread.

I knitted gay mittens
For my darling;
Round the edge a fine ornament,
In the middle I put my heart. (Barons, Visendorfs, 1894–1915, 7248)

It was great honour to know patterns. In patterns every knitter could express her fantasy, rhythm and understanding of beauty and show her art and diligence. The ways patterns were arranged in gloves and in other pieces of clothes were closely connected with peculiarities of Latvian people. Latvians

were tended to live apart – in farmsteads, the same with girls' handiwork – each element in pattern is locked and completed.

The pattern has got not only ornamental function but narrative and informative function as well. We can compare Latvian ornaments with the language of signs that contain different symbols. In ancient times many graphical signs had symbolic sense, even magic power was attributed to some signs. A Latvian frequently relied on a pattern sign like on witchcraft words. For example, a cross which was used both in positive magic and in black magic, repeatedly was used as a protective sign. The power of magic circle was believed in, this helped to concentrate, not to give away or to stop. (Kraukle, 2006) Pretty often girls are mentioned in folk songs who tried to bewitch the sweetheart fellow with the help of inwrought or knitted-in sign of pattern.

I do not knit mittens
Without yellow yarn:
I know my ploughman
Has yellow hair. (Barons, Visendorfs, 1894–1915, 7259).

What had been and still is the mission of Latvian folk pedagogics?

Folk pedagogics became the effective mental and moral power during the long medieval period of time. There were found means in the struggle against foreign enslavers and their ideology.

In the further centuries when the pedagogical thought got the theoretical shape, ideas and conclusions of folk wisdom became the significant initiative source for the beginning of Latvian national pedagogics. Johans Godfrīds Herders and Garlībs Merķelis found new ideas in the folk experience highlighting the nation's particularity and value in the process of cultural development. J.H. Herders got to know the life of Latvian folk, its traditions and he was the first to understand the cultural historical significance of folk songs in people's life, in personality development, in understanding the humanity over the years. His collection of folk songs *Stimmen der Volker in Liedernl* led Latvian folk art in the turnover of European mental life. He saw the unceasing value in Latvian folk songs. (Anspaks, 2003, 58) This was accepted by Neo-Latvians who formulated the goals for implementation of Latvian school and upbringing. Juris Alunāns appraised approvingly the meaning of folk songs in the upbringing.

Krišjānis Barons called folk songs and singing as „pricy intellectual fortune" and wrote „ when we got at the bottom of the healthy core of our folk songs, in them we discovered the best ideal ambitions of the human's spirit, the deepest and most virtuous feelings of the human's heart and spirit, that never got old though any ostensible possession of its time changed." (Barons, Visendorfs, 1894, 1.sēj., 18)

Kr.Barons called to look into folklore closely and pointed out that folk songs still suited as a mirror for our family life.

Aleksandrs Dauge once emphasized the importance of folk songs and indicated that even in modern period it was possible to make out significant ideas and conditions for improvement of upbringing practice and development of pedagogical ideas. (Dauge, 1924)

In general we can say that the basis and sources of Latvian identity are found in folk songs. Investigating oral folk art, one can find out about his I, one's own essence. „If we deny and lose our history, our culture and language we will disappear as a nation," underlined Jānis Rudzītis. (Rudzītis, 2006, 29) Imants Ziedonis has expressed the significance of folk songs: 'This day has to come out as it is a wrong opinion that folk art is only the art of souvenirs, of art galleries or the folk song is to be sung only in song and dance festivals or it is for small children to be recited at the Christmas tree this is the way of thinking of our nation, quite present-time, quite natural, only polished more accurately in the course of centuries.' (Ziedonis, 1981, 8) In its turn Vaira Vīķe-Freiberga points out that our only care is how to draw these values closer to the folk life. (Vīķe-Freiberga, 1993)

Conclusions

Folk pedagogics is an inexhaustible object of investigation where it is possible to discover more and more new aspects. We can make the following conclusions during investigation of handiwork value in folk pedagogics:

- in the course of time the ideas of folk pedagogics inherited in work, in honour and in upbringing have become a universal, all-embracing system of means in children's education and upbringing where handiworks have a significant place;
- compositions of folklore – folk songs, traditions, habits, beliefs, ethnographic materials, archaeological findings, written evidences – have become the sources of folk pedagogics where the essence of handiworks is revealed;
- the ideal of a human in Latvian folk pedagogics comprises moral, aesthetic and intellectual values; work and working habit are considered the main values of life and at the same time the criterion of beauty and the measure of human's moral and intellectual development;
- the goal of studying and upbringing – to prepare an economical person that is why „know-how" skills were highly appreciated;
- our ancestors highly evaluated not only the practical meaning of each thing but also its aesthetical look so the handiwork was so much respected;
- evening works – this was one of the most powerful factors in encouragement of culture development and at the same time became as the working school for the Latvian farmers;
- folk songs let us trace the course of development, technical progress and main differences of the most widely spread handiwork (spinning, weaving, needlework, knitting) in various areas of Latvia;
- folk songs give the wide insight about the available textile fibres used for weaving and making clothes and to understand how well the girls knew different methods of colouring, features of plants and means of etching;
- folk songs reflect the symbolic meaning of pattern signs, even attributing magic power to some patterns; quite often the most spread trades and their characteristics are mentioned in folk songs – blacksmiths of gold and silver, weavers, carpenters, shoemakers.

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FEATURING SUSTAINABILITY: A REVIEW OF DIFFERENT TYPES OF DIETARY GUIDANCE FOR CONSUMERS

Suzanne Piscopo PhD
University of Malta, Malta
suzanne.piscopo@um.edu.mt

Abstract: In recent years there has been growing attention to sustainable production and consumption also when it comes to food. The idea that one's dietary choices have an impact not only on personal health and wellbeing, but also on the natural environment and the producers of the food is being emphasised. Yet, adherence to any guidance provided to consumers is influenced by the criteria they use to make their consumption choices, as well as the value they award to different qualities of the food. Given the emerging sustainability concerns, consumers are being challenged to reframe this quality valuation to consider both internalities of the food, such as flavour and appearance, as well as externalities of production and consumption, such as harm to human health, socioeconomic impact, as well as environmental damage, promotion of animal welfare, biodiversity and cultural food traditions. This paper will review three different examples of guidance issued in the past few years; namely, the Swedish National Food Administration's *Environmentally Effective Food Choices* guidelines, the German Council for Sustainable Development's *Sustainable Shopping Basket* guide, and the Barilla Centre for Food and Nutrition's *Double Pyramid* Common and specific features will be identified with a view to discussing their implications for concepts, and skills taught by Home Economists.

Keywords: sustainability, consumption, food, dietary guidance, food pyramid, Home Economics.

Introduction

One can safely say that in recent years sustainable production and consumption have been a main focus of discussions regarding resource usage at local, national, regional and global level. (Global Research Forum…, 2012; Starke, 2012; The Future we Want, 2012; Communication from the Commission…, 2008)

Food has been one resource which has received much attention due to its fundamental role in maintaining life, but also because of the various inter-relationships with other resources and their impact on human and environmental wellbeing. (Moomaw, Griffin, 2012; Living Planet Report…, 2012; Macdiarmid, Kyle, 2011; Starke, 2011; Looking Back, Looking Forward…, 2011; European Food…, 2010; McMichael, Powles, 2007; Ministry of Agriculture, Food and Consumer Affairs Sweden, 2006) According to a recent European Commission (EC) report:

> Between now and 2050, growth in global population and changing diets in emerging countries are projected to bring about a 70% increase in food demand as an average of the different possible scenarios analyzed. Simultaneously, depletion of fossil hydrocarbons will increase the demand for biofuels and industrial materials, which may compete with food for biomass. At the same time, natural resources are being depleted and climate change is pressing the agenda. (Sustainable Food Consumption…, 2011, 5)

Governments, civil society, industry and consumers themselves are not oblivious to this scenario. International bodies and governments are working on different food, agricultural and energy policies to address issues related to food production, consumption, wastage and scarcities. (Environmental Audit Committee…, 2012; Energy-Smart Food…, 2011; Guidelines for a Healthy Diet…, 2011; Reisch, Lorek, 2011; Recipe for Success…, 2009) Institutes and NGOs are developing campaigns to lobby for sustainable food policies. (Submission to the Public Consultation…, 2012; Resetting the Table…, 2011; Slow Food, 2013; Projects & Campaigns, 2013; Think Twice…, 2006) Food industry is looking at its supply and distribution chains, exploring sourcing ingredients and processing, packaging and delivering its end products in a more sustainable manner, whilst also reformulating products with sustainability principles in mind. (Environmental Sustainability…, 2012) Depending on their personality, socio-economic circumstances and access to food and on the impact of the mass and social media on their food choices, consumers may be more or less aware and more or less responsible

with respect to the sustainability of their food consumption choices. (Barilla Centre, 2012; Verain, Bartels, 2012)

A comprehensive definition of the term 'sustainable diet' was proposed in 2010 during a symposium sponsored by FAO and Biodiversity International where it was stated that:

> Sustainable diets are diets which have a low impact on the environment, contributing to food and nutritional security as well as to a healthy life for current and future generations. Sustainable diets contribute to the protection and respect for biodiversity and ecosystems, are culturally acceptable, economically fair and accessible, adequate, secure and healthy from a nutritional viewpoint and, at the same time, optimize natural and human resources. (Burlingame, Dernini, 2010, 7)

This definition highlighted that food production and consumption, dietary requirements and nutritional recommendations are interdependent, and that the health of human beings cannot and should not be divorced from the health of ecosystems.

Such assertion was not new, however. A paper by Gussow and Clancy, published in 1986 and titled 'Dietary Guidelines for Sustainability', argued for the importance of choosing diets with a regard not only to health, but also to the much broader sustainability. Already at this point, the authors were promoting the concepts of buying locally and seasonally and seeking products which were less energy intensive in their cultivation, production and transportation. They felt that nutritionists and nutrition educators had a crucial role to play in teaching individuals to perceive foods more than just sources of nutrients, to appreciate the various impacts of their food choices on themselves, others and the natural environment, and to take action to adopt a more sustainable diet.

However, how people make food choices and what they eventually eat are very complex processes. The multitude of factors involved in these processes has often been presented using different socio-ecological models, describing the interplay of these factors at different levels of the environment. (Fitzgerald, Spaccarotella, 2009; Robinson, 2008; Story, Kaphingst, 2008; Piscopo, 2004) The criteria consumers use to make their consumption choices, as well as the value consumers award to different qualities of the food are based, amongst others, on personal preferences, experiences and goals; perceived or actual needs and resources available to meet these needs; as well as a suite of social, cultural and policy-related factors.

When it comes to consideration of sustainability, one can take the example of ecological and organic food consumption behaviours. Physical availability, price, health value, environmental impact, social norms and self-image and perceived locus of control with respect to being a responsible citizen often come into play to differing degrees when individuals are deciding whether to purchase ecological or organic foods. (Vanhonacker, Van Loo, 2012; Tobler, Visschers, 2011; Makatouni, 2002)

The challenge to anybody who is trying to guide consumers to make informed sustainable dietary choices is not only to provide them with clear, understandable, applicable and credible information and tips, but to somehow influence their motivation and willingness to make such choices. The quality criteria consumers use will need to be reframed in such a way that they considers both internalities of the food, such as flavour and appearance, as well as externalities of production and consumption, such as harm to human health, socioeconomic impact and environmental damage, as well as protection or promotion of animal welfare, biodiversity, cultural food traditions and conviviality.

Conscious of this ever-changing scenario, with constantly emerging research about sustainability, food production issues and consumer behaviour, several projects and websites are being developed by research institutions and NGOs to assist consumers in making sustainable food choices and adopting sustainable diets. (Making Sustainable…, 2010; Eat well and save…, 2007; Decoding food labels, 2008; Grace Communications, 2013; Love Food, 2013; Slow Food, 2013; Welcome to Livewell…, 2011) However, dietary guidance for consumers by state authorities or by the food industry, reflecting a holistic perspective of sustainability, is still somewhat lacking. This despite the fact that the Giessen Declaration suggested an expanded focus to the application of nutrition science, harnessing an integrated systems approach and incorporating environmental and social dimensions:

> The human species has now moved from a time in history when the science of nutrition, and food and nutrition policy, has been principally concerned with personal and population health and with the exploitation, production and consumption of food and associated resources, to a new period. Now all relevant sciences, including that of nutrition, should and will be principally concerned with the cultivation, conservation and sustenance of human, living and physical resources all together; and so with the health of the biosphere. (Giessen Declaration, 2005, 784)

Given the above background, this paper will now describe examples of guidance for consumers which have tried to marry different principles of sustainable consumption and present them in a way to sensitise and inform consumers on the various consequences of their food choices, and/or offer simple, practical and pictorial messages for adopting more sustainable diets.

Methodology

Three examples of consumer guidance will be described. Two are from state entities and one is from the food manufacturing industry. The examples were chosen arbitrarily, mainly based on their being innovators in the area, their clear use of scientific evidence to substantiate their messages, or their having recently publicised the sustainability aspect of their graphical guidance tool. It is to be noted that there are surely other similar initiatives in place (Mithril, Dragsted, 2012; Marks and Spencer, 2013). This paper merely aims to present a selection which will introduce the diversity of guidance available.

Example 1

The first document to be discussed is the Swedish National Food Administration and Environmental Protection Agency's (The National Food Administration's..., 2009) *Environmentally Effective Food Choices* draft guidelines. These guidelines were written up and presented to the European Commission in 2009 for consideration and inspiration within other EU countries. Despite being withdrawn at the EU level, the guidelines are still promoted nationally by the Swedish National Food Agency (Eco-smart food..., 2012) as *Eco-smart food choices.*

The overall aim of these guidelines is to outline the health value, recommended daily intake and consequences of over-consumption of different food groups, as well as the environmental impact of consuming foods within these food groups, looking at effect on climate change footprint, toxicity of the environment, variety in agricultural landscape, balance in marine environment and biodiversity. Foods covered include vegetables and leguminous plants; fruits and berries; potatoes, cereals and rice; meat (beef, lamb, pork and chicken); fish and shellfish; cooking fat; water. The main messages in relation to each food group are presented in Figure 1.

• Eat seasonal, locally-produced vegetables, fruits and berries, preferably cultivated organically. Eat more beans, lentils and peas, replacing some meat intake. Choose vegetables which can be stored for long periods and are locally produced all year round. Store fruits and vegetables properly and only buy what is required.
• Try to choose locally produced bread, grains, grain flakes and pasta, preferably organic. Limit rice consumption (due to methane released from water-soaked rice fields). Substitute by oats or wheatgerm.
• Eat meat less often and in smaller quantities, including substituting one or two meat dishes a week by plant-based meals and decreasing the quantity of meat on the plate. Eat locally-produced meat, preferably from animals which have grazed on natural grassland and reared organically.
• Eat fish from stable/strong stocks and which have been caught wild or farmed sustainably. Look for eco-labels to help you choose. Vary the fish and shellfish you consume and try new recipes.
Opt for rapeseed or olive oil. Avoid palm oil.
Avoid bottled water and softdrinks.

Figure 1. The Swedish *Environmentally Effective Food Choices* guidelines: Key messages.

The report highlights that making food choices which are healthy and making food choices which are good for the environment are often compatible. For each food group, apart from the nutritional value and health benefits or otherwise, the different types of environmental impact are explained in detailed yet simple terms. Thus, it is very clear to consumers why certain foods are recommended and others are not from the environmental perspective, and they are encouraged also to read food labels when available and to ask about the source of food when it is not amply evident. One lacuna of the guidelines is that they do not direct the Swedish consumers' attention to the national or global social and economic dimension of their food choices.

Example 2

The Sustainable Shopping Basket guide of the German Council for Sustainable Development (The Sustainable Shopping…, 2011) aims to help consumers appreciate that one does have a choice when it comes to making sustainable purchases. It underlines how this is feasible by reframing personal values, becoming knowledgeable about products, looking for guiding labels and seals and planning purchases. The Guide's goals can be seen as a) assisting consumers in their daily purchase decisions; b) encouraging consumers to bring their influence to bear on producers and retailers by demanding sustainable products; and c) encouraging consumers to normalise the growing trend of adopting a sustainable lifestyle.

The section on food in the Guide addresses sustainability quite comprehensively, looking at the nutritional value of food, environment-friendly credentials, as well as support for fair trade and the local economy. Specifically it promotes consumption of a plant-based diet (in favour of a diet based heavily on animal products), coupled with a low consumption of fatty foods, sweets and alcohol. It also promotes eating local and seasonal food and being selective when buying fish. Choosing certified organic foods and fair trade foods is also encouraged, as is preference for recyclable glass and PET bottles. The main messages in the Guide are summarised in Figure 2.

- Healthy food products
- Organic products
- Seasonal fruits and vegetables, grown locally
- Less meat and fish
- Fair-trade products
- Beverages in recyclable packaging units

Figure 2. Recommended main food contents of the *Sustainable Shopping Basket.*

The Guide acknowledges that sustainable products may sometimes be slightly more expensive. It describes the added value of such products as follows:

> A product that is safe for the environment and has been produced under fair conditions costs more than one that has been produced as cheaply as possible. But the fair product offers added value for everyone concerned. Producers and suppliers who pay more attention to their products and employees deserve to expect a reasonable price in return. Otherwise, a sustainable economy has no chance of survival. (The Sustainable Shopping…, 2011, 8)

The thread of this argument seems to be that consumers may need to come to terms with the fact that in current economic and ecological conditions, one might have to pay a monetary price for ensuring justice and dignity among humans and stewardship of the natural environment. Indeed, readers of the Guide are encouraged to critically analyse their own purchasing priorities and goals in light of sustainability principles and establish a framework of values to suit these. The tone and approach used in the Guide clearly aims to empower consumers to take action, in their own way and at their own pace, towards sustainable consumption.

Example 3

The Barilla Centre for Food and Nutrition (BCFN) is an institution which was established to study food using a multidisciplinary approach. Its vision is stated as joining science, politics, business and society to ensure the sustainability of humankind and the planet, as well as to "popularize sustainable eating habits." (Barilla Centre, 2013; Double Pyramid…, 2012)

One of the outcomes of the BCFN vision is the *Double Pyramid,* first publicised in 2010. (Barilla Centre, 2012, 55-56) The graphic comprises a food pyramid juxtaposed alongside an inverted environmental pyramid (Figure 3). It is presented as a tool for showing that paying attention to food choices is beneficial not only to human health, but also to planetary health. In other words, foods of which a high intake is recommended due to their health value tend to be the foods which are more environment-friendly (or have low negative environmental impact) and vice-versa. Thus, plant origin foods are towards the bottom and middle of the Food Pyramid, whereas animal origin and more high-fat high-sugar foods tend to be towards the upper level and top vertex. In contrast, most of the animal origin and more high-fat high-sugar foods are at the bottom and middle of the inverted Environmental Pyramid, whereas plant origin and less processed foods are towards the upper level and top vertex.

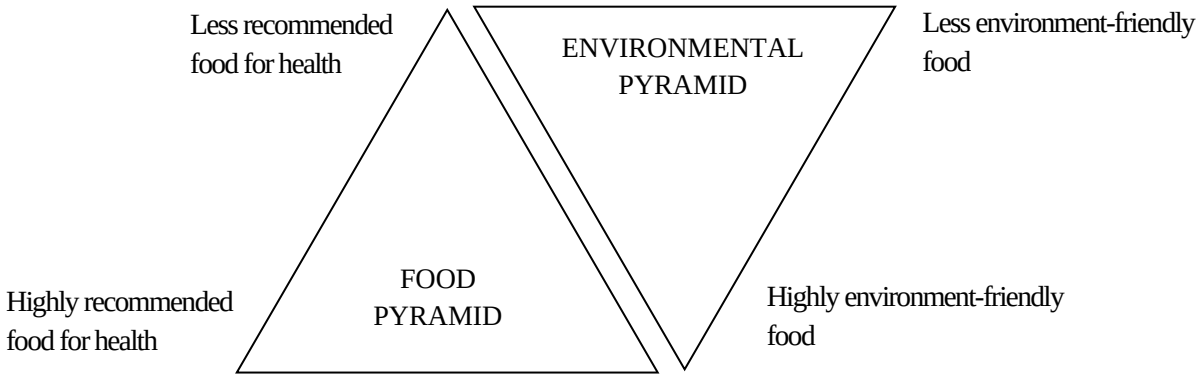

Figure 3. Basic concept of the Barilla Food and Environmental Double Pyramid (adapted from Barilla Centre, 55-56).

The latest 2012 report and related graphic (there is now also a version to meet the nutritional needs of children (Barilla Centre, 2012, 57-58) are based on a wealth of data and research studies collected from around the world. These data and studies "underline the existing link between the production and consumption of food, dietary requirements, and nutritional recommendations, while at the same time confirming the concept that the health of human beings cannot be disconnected from the health of ecosystems". (Barilla Centre, 2012, 13)

The BCFN report refers to a multitude of food guides or models, as well as nutrition and health-related studies which have consistently suggested that the bulk of our diet should be based on foods of plant origin, with foods of animal origin only being consumed in moderation. The report also describes the environmental impacts of the lifecycle of a selection of foods, looking at cultivation, processing, packaging, transportation and cooking. It assesses the Ecological Footprint (measuring the planet's ability and hectares required to regenerate resources used), the Carbon Footprint (measuring greenhouse gas emissions) and the Water Footprint (measuring use of water resources). So, for example, when comparing the environmental impact assessment for 1 kilogram meat versus 1 kilogram tomatoes, it is very clear that meat has a greater negative impact than tomatoes (109 vs. 1.5 global m^2; 26kg vs. 1.1kg CO_2 eq; 15,500 vs. 214 litres of water). The authors conclude that:

> The comparison between the classic Food Pyramid, built on the basis of the nutritional properties of foods, and the new Environmental Pyramid, in which each food is positioned on the basis of its environmental impact, shows how the foods whose more frequent consumption is suggested are also the foods which better preserve the health of the planet. (Barilla Centre, 2012, 13)

Given the concern often raised regarding the increased expense to the consumer and families of eating a sustainable diet, the BCFN report compares the weekly cost (based on 2 regions in Italy) of four different menus: a meat-based menu (meat at least once daily), meat and fish-based menu (meat or fish at least once daily), vegetarian menu (plant-based, meat and fish excluded but milk, cheese, eggs etc. included) and a sustainable menu (plant-based, meat and fish on two days a week). The latter diet is the second cheapest and the second lowest in Ecological footprint (Table 1).

Table 1

Weekly Cost and Ecological Footprint in Italy of Four Nutritionally-Balanced Diets

Menu	Cost (EURO/week)		Ecological Footprint (global m^2 /week)
	Milan	Palermo	
Vegetarian	48	44	144
Sustainable	50	44	158
Meat-Based	53	46	187
Meat And Fish-Based	54	47	184

(Adapted from Barilla Centre, 2012, 73)

Of interest is that the 2012 BCFN report demonstrates that the traditional Mediterranean Diet, as also described originally by Ancel Keys and collaborators (Keys, Aravanis, 1980) and more recently in various scientific studies (Burlingame, Dernini, 2011; Medina, 2011), can be considered the blueprint for a sustainable diet which is rich in biodiversity and also low in cost. The authors assert that the traditional Mediterranean diet "is the cheapest, as long as the foods are selected judiciously, preferring those which have a low cost and high nutritional value, such as pasta, legumes, certain types of vegetables, oil, and dried fruit. In particular, low-fat dairy products and eggs are the least expensive source of protein." (Barilla Centre, 2012, 14) Thus, the authors strongly recommend that the Mediterranean diet is promoted widely as a valuable route towards a sustainable diet. (Hassan-Wassef, 2012)

Results and discussion

The United Nations 10-Year Framework of Programmes on Sustainable Consumption and Production recommends "integrating education for sustainable consumption and production in formal and non-formal education programmes, as appropriate." (Letter dated…, 2012, 44) Similarly, the European Food Sustainable Consumption and Production Round Table (Non-environmental aspects..., 2010, 13) recently stated that public authorities, food chain operators, civil society and the scientific community should join forces to enhance environmental literacy by using a variety of appropriate communication tools to transfer relevant information to different population groups.

However, transfer of information has its limitations, especially when it is not translated into action. True education for sustainable consumption involves transmitting knowledge, fostering attitudes and nurturing skills which help enable individuals to manage their own life, while also contributing to the stewardship of the global society's collective life (Here and Now…, 2010). Education which melds scientific knowledge with a values-based emotional commitment is necessary to move from merely understanding sustainable consumption and production to taking action to achieve sustainability. (Dahl, 2012; Schröder, McKinnon, 2007) A recent call for a revamped dietary education is very much in line with this sentiment:

> Dietary Education is thus expected to convey a number of messages that promote sustainable diets and the ethics of food consumption as applicable and relevant to each country and location and, more importantly, to raise awareness about current environmental issues such as carbon and water footprints. (Hassan-Wassef, 2012, 410)

As evident from the three initiatives presented above, different entities are trying to 'educate' individuals to eat more sustainably. There are many messages which are common; yet there are also instances where messages are more specific or where some aspects of food and sustainability are given greater emphasis.

From the perspective of the impact of food on human health, there is a clear message to favour a plant-based diet which incorporates a variety of foods of plant origin, ranging from grains, to vegetables, pulses, fruit, nuts and herbs and spices. Trying to frequently consume raw vegetables and fruit is also advised, as is opting for 'whole' varieties of grains.

If individuals choose to consume them, it is recommended that meat (including processed) and fish and seafood are each consumed only a few times a week and that portion sizes of meat are not large.

Another recommendation is to keep foods high in less healthy fats and/or sugars to a minimum. With respect to fluid intake, local tap water and local fresh fruit juices are promoted over bottled water and sweetened softdrinks.

Trying to opt for foods which have been cultivated or reared organically, are in season and are produced locally are messages which are linked to human, environmental, social and economic wellbeing impacts: such as, less use of artificial agro-chemicals, less use of fossil fuels, greater retention of nutrients, support for local food producers, support for traditional foods and promotion of variety in the local agricultural landscape.

The different guidance tools place heavy emphasis on the multiple environmental impacts of dietary choices. The consequences for land and water use (e.g. arising from plant cultivation, animal rearing or production of feed for animals), for raw material use (e.g. in the production of food packaging), for greenhouse gas emissions (e.g. arising from plant cultivation and animal rearing practices, transportation of food and feed, food processing and storage), for survival of species (e.g. linked to management of fish stocks, felling of rainforests), and for maintenance of a rich biodiversity (e.g linked to fishing methods, cultivation of seasonal and year-round produce) are all mentioned and explained to different degrees. In this regard, consumers are encouraged to become familiar with and seek eco-friendly labelling, such as organically-farmed, non-GMO and sustainably-fished food certification, as well as recyclable packaging symbols, which can help facilitate sustainable food purchasing.

The economic aspects of consuming a sustainable diet are also referred to, primarily from the perspective of effect on the consumer's pocket, but also from the perspective of the producer – near or distant. Arguments and data are presented to show that often choosing foods or diets with higher sustainability credentials is not more expensive for the consumer. In some cases, where the cost is higher for particular products (e.g. organically farmed foods or fair trade products), consumers are encouraged to consider the benefits for human wellbeing, for protection of the natural environment, and for creation and maintenance of jobs or a decent living wage amongst others.

Directly related to cost to the consumer and more holistically 'cost' to use of global resources, is domestic food waste. Consumers are guided to follow the general rule that "nothing edible belongs in the trash." (The Sustainable Shopping…, 2011, 14) It is suggested that they pay attention to their own patterns of consumption and buy an appropriate amount of food in the appropriate frequency. It is also suggested that they adopt good storage practices and learn how to make safe and creative use of leftovers. Frugality, or avoidance of over-consumption, is also advised.

Many of the above messages and practices have been integral to the education provided by Home Economists as from the birth of the discipline. Due to advances in scientific research and technology and keeping in mind the socio-economic and cultural context of the populations one is working with, Home Economists may need to critically analyse the knowledge they are transmitting, the attitudes they are fostering, the skills they are nurturing and the pedagogy they are using and adapt them to suit the needs and lifestyles of their students or audiences.

Subjects such as composition of the diet, animal and plant protein foods, shopping for food, meal planning, use of leftovers, food labelling and factors influencing the diet may all benefit from greater consideration of other sustainability aspects additional to health. Individuals need to be prompted to question why they value foods the way they do and whether a revaluation is necessary. This will help increase awareness of the holistic impact of dietary choices and behaviours and possibly lead to more responsible consumers.

Greater hands-on practice in actual food shopping and food production will allow students and participants to apply their knowledge of sustainability principles to make reasoned choices, make the most efficient use of resources and be creative in producing a variety of dishes to suit different circumstances. It is critical that students and participants cost any dishes planned and/or produced and compare with each other. It is equally critical that they are exposed to and preferably produce a wide variety of foods and dishes, which feature as many as possible of the following characteristics: seasonal, local, organic and traditional.

On a public health, consumer or educational policymaking level, Home Economics professionals have the capacity to contribute to the development of dietary guidance which encompasses sustainability principles, yet which is meaningful, practical and can motivate towards long-term attitude and behaviour change.

Conclusions

The three dietary guidance initiatives described above all have as a main goal enabling informed consumer choices with respect to food and sustainability. The different guidance, whether written or graphical or both, aim to primarily demonstrate the impact of personal food choices on individual, community and environmental wellbeing. Messages crafted strive to give direction to facilitate adopting sustainable diets.

Home Economists can be seen as major players in disseminating these messages to different population groups, such as in schools, places of work, homes for the elderly, retail outlets, via the mass and social media and even with policymakers. In their professional and vocational obligation as promoters of individual and family wellbeing, Home Economists should assist consumers to:

- understand what is meant by sustainable food choices and behaviours;
- value choosing and acting sustainably;
- critically assess their choices and behaviours and set goals to improve their sustainability profile within their means;
- advocate for a context which facilitates adopting sustainable food choices and behaviours by all citizens.

The end goal is for sustainable dietary consumption to become a social or behavioural norm, rather than a privilege for the knowledgeable or economically-able few. Home Economists can offer the practical knowledge to help this happen.

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THE PRINCIPLES OF SUSTAINABLE DEVELOPMENT ACQUIRING THEME FOOD WITHIN SUBJECT HOME ECONOMICS AND TECHNOLOGIES

Aija Pridāne, Dr. paed.
Latvia University of Agriculture, Institute of Education and Home Economics
aija_pridane@inbox.lv

Abstract: The article studies the nature of sustainable development of education and tasks for student's education, as well as implementation possibilities of relevant content in subject *Home economics and technologies.* Theoretically justified relevance between sustainable development and nutrition (food acquisition, consumption and people's eating habits) set up recommendations on subject acquisition. There are studied students and their parents eating habits and compliance to Latvian traditional cuisine. Purpose-researched and involve the fundamental principles of sustainable development in the content of topic *Food.*

Keywords: Home *economics* and technologies, principles of sustainable development, theme Food.

Introduction

21st century education is focused on sustainable development. Education for sustainable development is a world where everybody can benefit from qualitative education, introduce with values, to act and choose the lifestyle that provides the sustainable future and positive transformation of the society (Izglītība pārmaiņām…, 2012). Above mentioned issues are updated in the perspective of Lifelong learning in Latvia school and other educational institutions at all levels of education, in all programs and content of learning subject (Noteikumi par valsts standartu pamatizglītībā…, 2006), both in formal and informal education.

Education for sustainable development is required for young people to be able to make deliberate choice in favour of the creation and maintenance of the world, that both they and the next generation will be considered to be suitable for life and work. This means to give students the knowledge, build skills, responsibility and action competence of life for the long period of time. (Bonn Declaration, 2009). To search and understand the deeper roots of sustainability and non-sustainability, it is possible to identify and accept sustainable development idea as personal assurance (Salīte, 2009,8.,12).

Sustainability can be interpreted in many ways. It appears in all fields of human life and activities. Latvia's strategy of sustainable development as (Latvijas ilgtspējīgas..., 2010**)** one of essential priorities is mentioned promotion of sustainable lifestyles and human health. The better educated population greater will be the public health and welfare (Ilgtspējīga nākotne ir mūsu rokās, 2008)

The second priority is groomed and available cultural environment and cultural heritage (Kučinskis, 2006). This means to educate the society, by exploring protecting and training heritage today and passing it on to future generations. (Konvencija par nemateriālā…, 2003), (UNESCO Asociēto skolu…, 2011), (Vides kultūras mantojums…, 2006).

Both above mentioned priorities are attributable to the subject „Home economics and technologies" (Mājturība un tehnoloģijas…, 2006), because the learning aim and content is focused to develop students understanding about sustainable development, with an emphasis on safety and health issues and material importance of cultural heritage in multicultural society.

Despite the fact that standard of living in Europe and Latvia increase, the human health problems increase too. To a large extent this is contributing to the rapid pace of life, the wrong lifestyle, wrong food and eating habits. There are several reasons for that.

1. In the past people had less available product range, the processing and storage of the products were less effective and simpler, which also established the traditional menu. The attitude to food and eating habits developed with human lifestyle change. If before people had to work hard it was necessary also nourishing food. Nowadays young people's sedentary life and weight gain trend makes also requires choosing food with reduced number of calories.

2. At the beginning the family develops eating habits. They are mostly influenced by parents' views, material abilities, and lifestyle. They not always correspond to healthy eating conditions. As a result young people loose the understanding about importance of a meal, increases unhealthy food consumption.
3. Globalization has dramatically reduced presence of native and traditional cuisine in everyday meals. Sometimes the choice of products is ordered by fashion items. Those facts also correspond to young generation.
4. Food is mostly purchased in supermarkets, rather than grow by themselves. It can cause difficulties to determine the origin and the quality of food.

These problems points to the need to pay particular attention to the issue of the healthy eating habits and the importance of quality food in nutritional education.

These questions are discussed by *SlowFood* movement that becomes more popular in the world. The action and aims of movement corresponds to the conception of sustainable development and are focused to popularizing healthy eating habits (Slow Food, 2013), (Laba, tīra…, 2011), (Eiropas skolas…, 2012), (Mājturības un tehnoloģiju…, 2011) (The Principles …, 2011).

In order to popularize healthy eating habits the consumption of food, many significant documents and action programs have been accepted in Latvia and in the world, international projects are carried out. Students are involved in them as well (Tunte, 2011)**.**

Theoretical research allowed to define many sustainable development principles that should be included content of subject Home economics and technologies.

1. We have to choose in everyday meal flora products, reduce the consumption of meat and industrially processed food that contain much carbohydrates and saturated fat (Eiropas pārtikas deklarācija, 2011), (Seven principles…, 2012).
2. To develop the skills to choose safe food and combine the food stuffs in menu (Nachhaltige entwicklung…, 1999, 17).
3. To think about the usefulness of food stuffs- ecological sustainability (considering the criteria of biological farming). as much as possible use native and self-grown products , to grow spice in front garden and in pots as well as to freeze the grown vegetables and fruits on winter.
4. To choose minimally packed and food stuff without packing (Mācības patērētājzinībās…, 2007, 74.)
5. Remember that the quality of food is influenced by everything beginning from growing till serving. Therefor it is necessary to make food at home, take home made food to school and to work in boxes.
6. The healthiest products are those that are produced from ingredients acquired close to their living place (Graudiņš, 2012) and seasonal products.
7. Not to accumulate the rubbish but if they have appeared then to compost them or to do make other eco recycling (Eat well…, 2012).

Food scientists and specialists on the discussion about popularizing healthy eating habits besides the questions about choice of qualitative food and healthy food suggest to follow regional eating habits cultural traditions, because national food is usually prepared from native seasonal products (Eiropas pārtikas deklarācija, 2011). These questions are included in State guidelines of cultural policy 2006 – 2015 (Valsts kultūrpolitikas vadlīnijas..., 2006). Between the numbers of significant cultural heritage saving areas traditional preparation of food and meal is mentioned. It means not only to research and to re explore the national dishes, family recipes but also evaluate the viability of traditions nowadays (Anspoka., Siliņa- Jasjukeviča, 2010). Catering specialists have also focused on this actuality. No wonder traditional cuisine nowadays has become a fashion and tourism product.

It must be considered it is difficult to talk about real traditional Latvian cuisine because it was influenced by traditions of cuisines of other countries**.** This tendency continues to develop. As a result in order to use traditional products and Latvian foods there are used early unknown products and food instead, unknown food preparation traditions are taken over, forgetting about Latvian once. Nowadays Latvian traditional meals are served rather, mostly in special festival occasions, when presenting our

national traditions. in order to do that special knowledge and skills are needed. it must be related specially to young generation**.** Indisputably family plays significant role in developing social life culture (Schweitzer, 1991, 331), But nowadays knowledge and skills acquired at school plays determinate meaning.

The aim of article is to investigate and include fundamental principles of sustainable development in theme Food.

Methodology

Theoretical and empirical methods were used in the research. The studies of documents of literature and education allowed defining the fundamental principles of sustainable development that must be included in learning content of topic *Food* within study subject Home economics and technologies.

The general notion about the eating habits of students and their families its correspondence to Latvian traditional menu and contemporary features in traditional kitchen was acquired with the help of empirical research.

The questionnaire method was used for the research. The girls were involved in research from Jelgava secondary school N 4. forms 8.and 9; they were totally 27 students from those who acquire the subject *Home economics and technologies* with choice in textile technologies. In order to acquire the data the questionnaire with closed and free questions was prepared. All acquired data were analysed and summarized. Part of obtained results is provided for developing the subject content, the other part- for the further extended research.

Results and discussion

Questionnaire was made in two parts. Three questions were included in the first part where students tell what they know about Latvian traditional food:

1) which of traditional food girls have tried (Figure 1);
2) which of food the girls have heard for the first time (Figure 2);
3) which of the food is prepared in family (Figure 3).

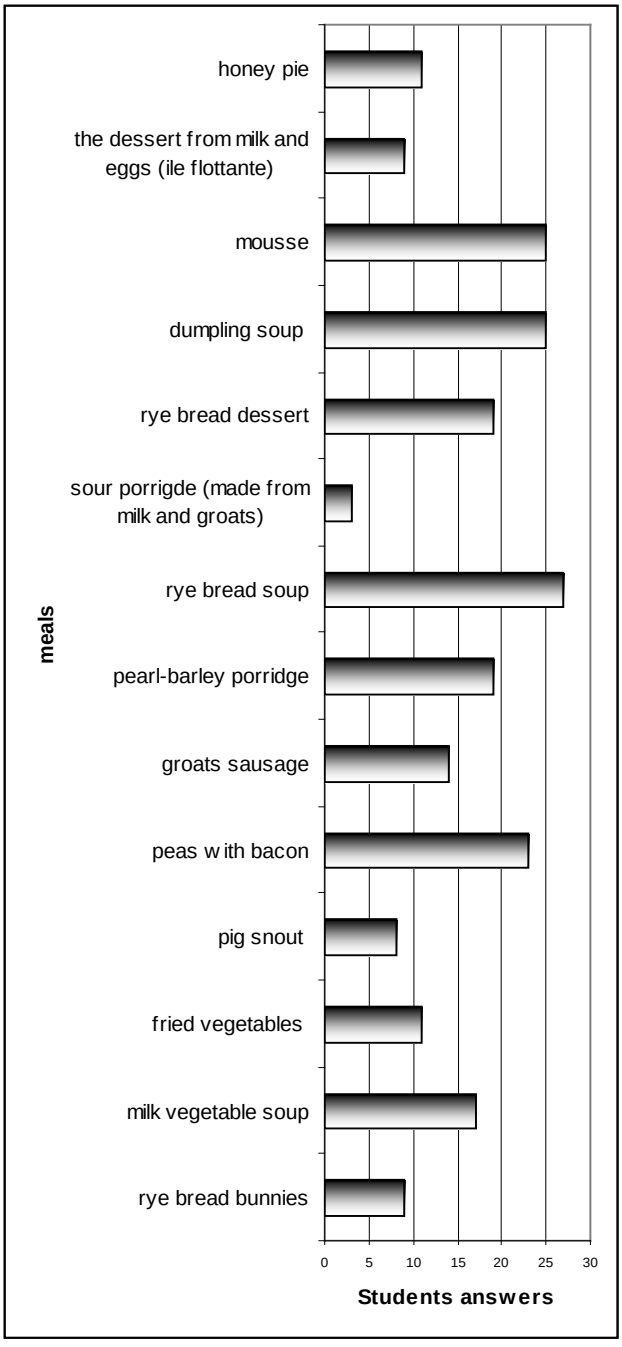

Figure 1.Students' answers to the question–which of the mentioned traditional food have you tried.

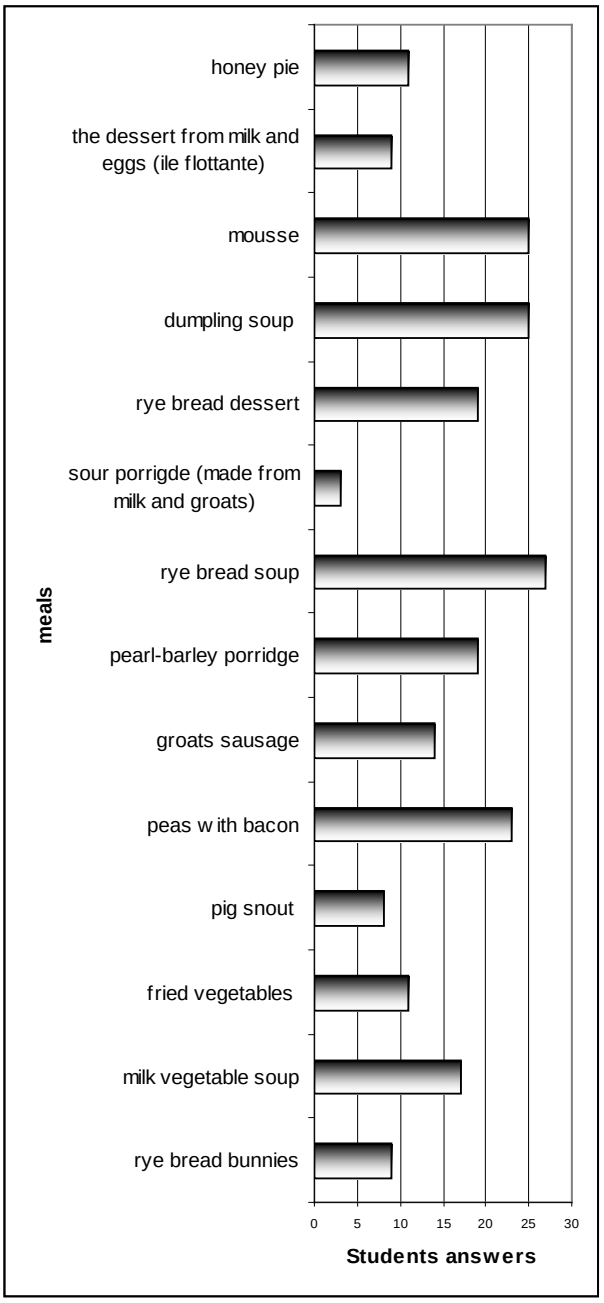

Figure 2.
Students' answers to the question- which of the food mentioned above have you heard first time?

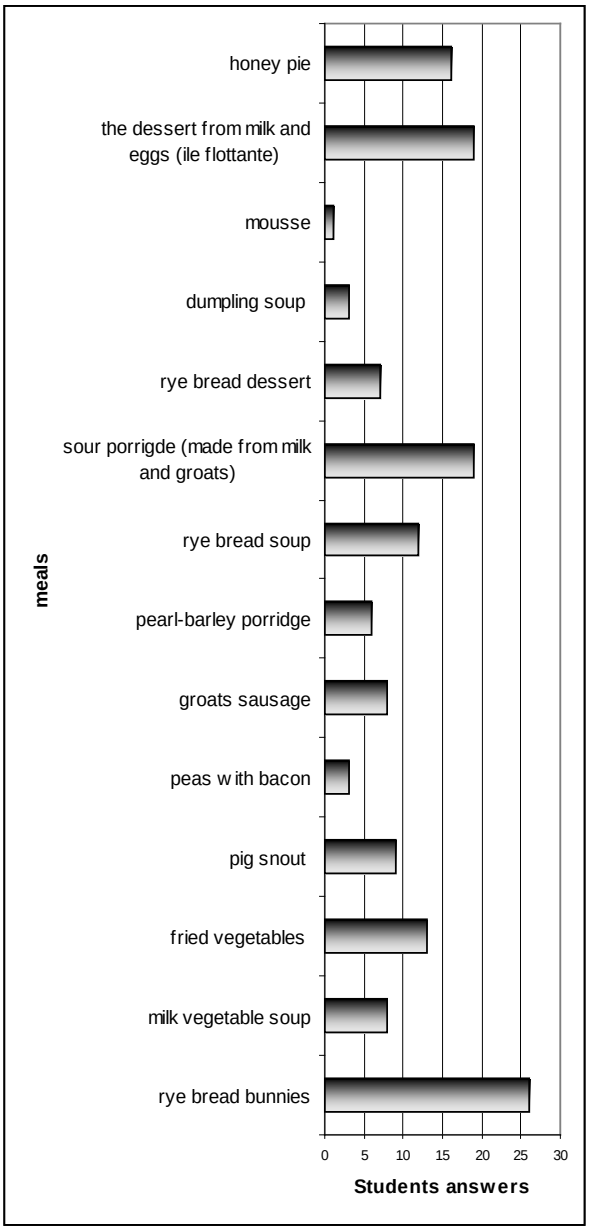

Figure 3.
Student's answers to the question- Which food is made in your family?

The names of 14 traditional Latvian foods which are especially characteristic in Zemgale region and prepared from typical food stuffs acquired in Latvia were mentioned in questionnaire.

Analysing the acquired answers to the first two questions (Figure 1, 2) I can draw a conclusions that students recognize and have tried the most part of previously mentioned foods. It is natural, because this food is discussed in theme Latvian national menu and part of them are prepared in cookery lessons. The least know meals are gruel, pig snout, fritters of coarse rye bread, floating islands and honey pie.

The answers to the third question (Figure 3) shows that the part of Latvian traditional food has hold a stable position in current menu. They are: mousse, dumpling soup, bread soup and milk vegetable soup, as well as peas with bacon and fried vegetables. Students' answers to all three questions confirm that the least known and rarely made national foods in families are: rough rye bread pie, floating islands, honey pie and sour porridge.

In the second part of the questionnaire were included free answer questions which gave an insight in eating habits of contemporary families- about preparing various groups of meals in students families such as: soups, hot main course, dessert, porridges, confectionery (Figure 4- 8).
It is delights that soups are made in families, (Figure 4). Students most often mention beet soup, cabbage soup, sorrel soup and quenelle soup, which has been in Latvian cuisine for ages. As the second most often made soup was mentioned *solanka*. It means that our Latvian cuisine becomes more international.

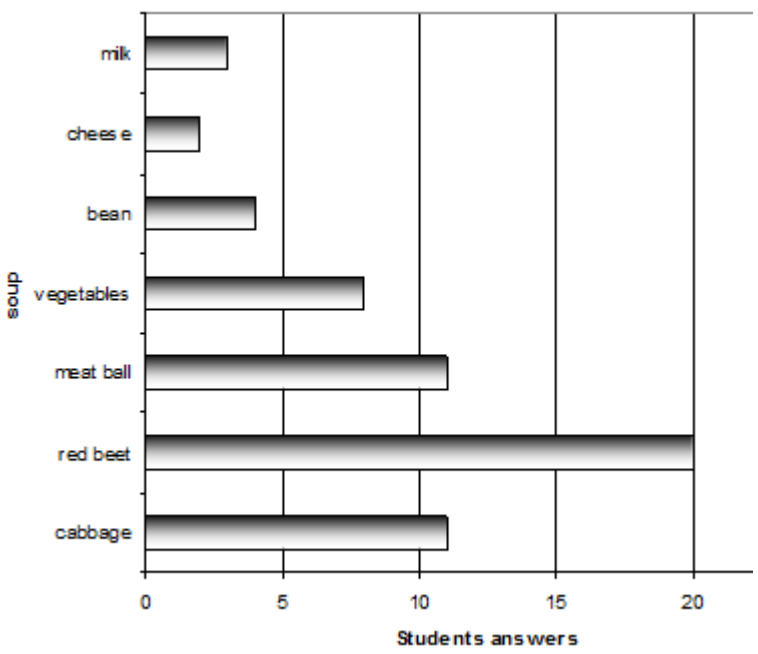

Figure 4. Student's answers to the question- Which soups are most often made in family?

As hot main course (Figure 5) most often was mentioned Italian snack- pizza and potatoes, in particular case pork chop and stewed cabbage too. It is possible that less and less hot main dishes are prepared at home in the traditional sense. Instead of that folks eat more fast food and junk food.

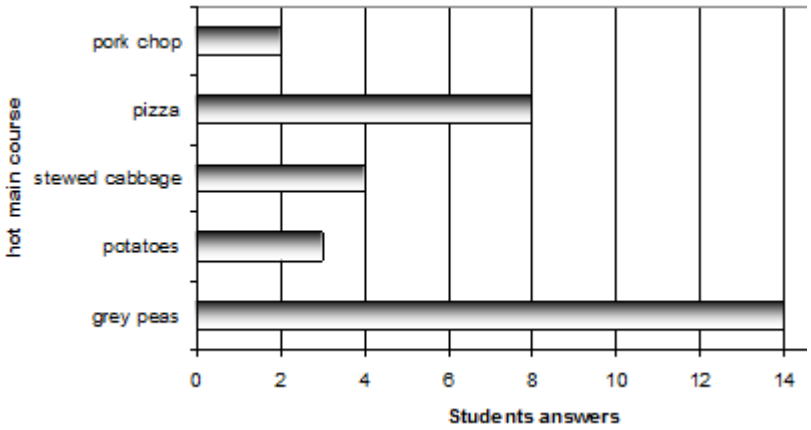

Figure 5. Student's answers to the question- Which hot main course meals are most often prepared in your family?

The results acquired in the questionnaire shows that porridges are still included in contemporary menu (Figure 6). The most popular are oat, manna and potatoes porridge. Only some families have esteemed valuable buckwheat porridge, grouts porridge and rice porridge.

One of Latvian traditional cuisine characteristic features is various desserts. Students in the questionnaire mentioned only: mousse and jelly (Figure 7). The conclusions made from answers are those that girls unwillingly prepare food at home, or parents do not allow them to, because desserts are prepared in every practical lessons at school and girls admit that they are tasty.

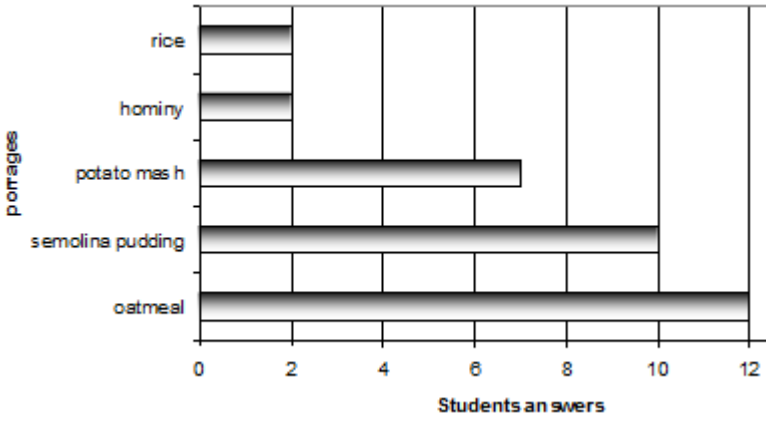

Figure 6. Student's answers to the question- Which porridges are most often made in your family?

As well confectionary is prepared less and less at home (Figure 8). It means that one significant features of Latvian national cuisine begun to

disappear. Bunnies with meat, pancakes and bunnies are prepared very seldom. It is possible because the offer in catering is very various and to preparing food takes a lot time.

According to the programme worked out by the author of article Pridāne A. (2009), in the syllabus of forms 8., and 9 the questions about Latvian traditional cuisi ne are included. Features of Latvian traditional cuisine and often used products and typical dishes are taught in form 8. Students in form 9 acquaint with the seasonal custom celebration and eating traditions and appropriate table laying. Each of the festivals had own celebration rituals, typical course and drinks to appropriate table laying. At the same time students in practical lessons prepare and try traditional Latvian food.

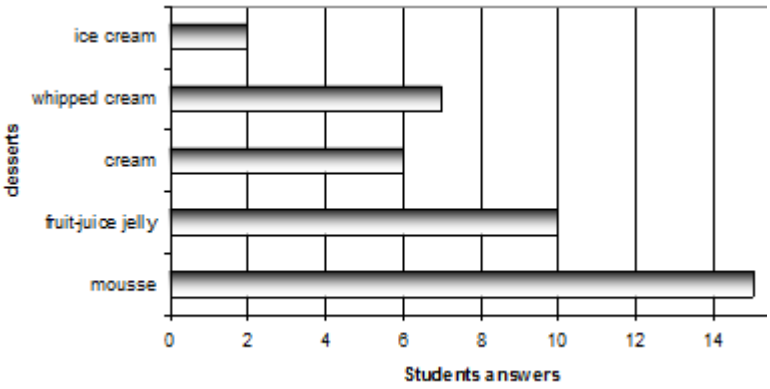

Figure 7. Student's answers to the question- Which desserts are made most often in your family?

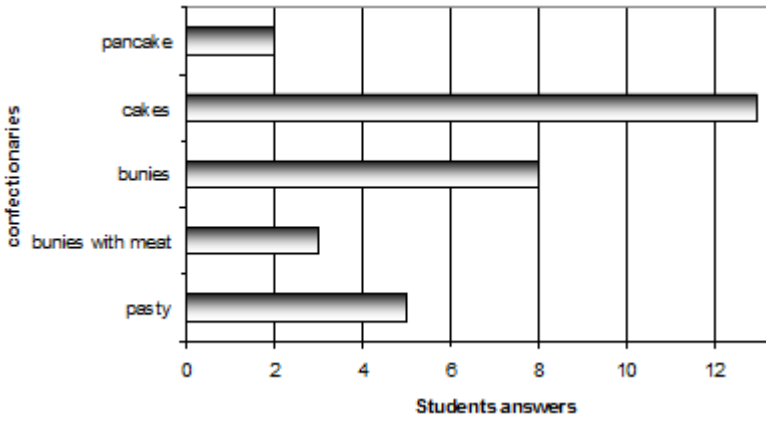

Figure 8. Student's answers to the question- Which confectionaries are made most often in your family?

Experience has shown that students initially has shown negative attitude to the food which they do not know- they do not want to prepare them and try them. Nevertheless common preparation and degustation during the lessons is the discovery. It is the most effective way how to convince students for the food good taste and encourage them to prepare it for their families as well.

Teachers together with students have possibility to make historical dishes contemporary with the help of creative attitude to learning. The examples are seen in mass media, cookery shows, the ideas and recipes for food is possible to acquire from typical Latvian products. At the same time students get the understanding about possibilities of usage, acquisition and choice of qualitative native food, learn to evaluate their own eating habits and in case of emergency to change them.

Conclusions

1. The acquisition aim of subject *Home economics and technologies* is pointed to sustainable development education. Acquiring topic *Food* it is possible view in relationship with proposed priorities in state and education documents:
   -people's lifestyle and health,
   -maintaining of the cultural heritage and passing it to the next generations.
2. In the context of sustainable development more basic principles that corresponds to the topic *Food* can be proposed and included in the learning content:
   - to choose native and seasonal dishes, as much as possible grow themself
   - prepare food at home and take it to school,
   - to make research on the history of regional cuisine and importance nowadays,
   - to evaluate the food and its preparation traditions vitality nowadays, to search for contemporary solutions of hereditary traditions**.**

3. Analysing the answers acquired in questionnaire there are conclusions that;
   - students have understanding about Latvian traditional food, because most part of the food students recognize and have tried;
   - the part of Latvian traditional dishes such as: mousse, dumpling soup, bread soup and milk vegetable soup, as well as pees with ham and fried vegetables, is the part of contemporary menu as well;
   - approximately one fifth part of mentioned meals: sour porridge, pig snout, rye bread pies, floating islands and honey pie are prepared seldom or not prepared at all, that makes think that these dishes are disappearing from contemporary menu.
4. At the result of acquired questionnaire there is tendency for new research about features of Latvian traditional cuisine and eating habits of the families.

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METHODOLOGICAL TECHNIQUES FOR PROMOTING DEVELOPMENT OF THE ELEMENTARY SCHOOL PUPILS DURING THE PROCESS OF FOLDING PAPER

Elita Volāne Dr. paed.
Riga Teacher Training and Educational Management Academy, Latvia
elita.volane@rpiva.lv

Abstract: A typical thing for practical origami studies is mental and physical unity, harmony of mind, sense and will which promote the cognition of pupils' development. Pupils' development that forms the basic component for origami studies is the unity of inner and outer pedagogical factors orientated to the personality of pupils, "ego". The content of origami teaching at an elementary school is accomplished by the process approach. It is necessary to stimulate children to act without assistance. It creates gradual aggregation of pupils' origami skill in their experience. Every pupil's step to self-dependence, every new level of independence at the same time is a new form of co-operation, a new level of independence and self-dependence towards the development of creative activities. Pupils' skills in origami are developed by the help of pupils' "ego" cognition which is based on the variety of methodological approaches, pragmatism, creativity, free choice and possibilities to satisfy their individual needs.

Keywords: folding paper, development of the elementary school pupils.

Introduction

It is stated by the National Standard of Basic Education that it is important to create a learning environment that allows a pupil to feel and believe that he can do something by himself, and what he is capable of doing, is not of minor significance (Valsts pamatizglītības…, 1998). In October, 2012 E.Zalāne analyzes the cognitions of the society, teachers and the employees of the National Education Centre regarding the necessity of handicrafts in pupils' development, this time more emphasizing the intellectual development (Zalāne, 2012, 2-3). It is interesting that nowadays many publications, descriptions of the scientific research can be found regarding the content of the subject "Home economics and technologies", however, it should be recognized that still since the time of the third awakening of Latvia the existing conflicts in the teaching of home economics and technologies at the elementary school have not been resolved.

Firstly, there is the contradiction between the implementation of the teaching content of home economics and technologies at the elementary school and pedagogical cognitions in terms of pupils' development.

Secondly, there is the contradiction between the theory and practice regarding the methods and techniques in the elementary home economics and technologies training.

Thirdly, there is the conflict between the pupils' interests, individual needs and the opportunities of the implementation of teaching content in a modern elementary school.

The existing conflict between the curriculum of the elementary school home economics and technologies and its implementation in terms of pupils' development is characterized by a wide range of curriculum and the reduced number of lessons per week. Yet, in this article, it is not possible to cover a wide range of curriculum; therefore we have chosen the acquisition of paper folding skills in terms of the pupils' development due to the number of reasons:

- • at the lessons of home economics and technologies at the elementary school paper folding is used very little, because there is an inadequate amount of handouts available for an appropriate elementary school age in the national language,
- • teachers of home economics and technologies at the elementary school have not acquired the paper folding skills and its teaching methodology at sufficient levels,
- • paper folding methodology in terms of the pupils' development has not been developed and published.

Aim of the study

Cognize and discover methodological techniques in the acquisition of paper folding skills in terms of the pupils' development.

Methodology

The scientific article analyses the theories of pedagogy and psychology which support the modern pedagogical process, theory of activity, justifying the activity as a system of process within the subject and object interaction.

The discussions were held in order to cognize empirical experience. The data regarding the methods and techniques applied to the curriculum of the elementary school home economics and technologies were obtained, this time in the acquisition of paper folding skills in terms of the pupils' development. Elementary school teachers of home economics and technologies, who study part-time at Riga Pedagogy and Educational Management Academy and elementary school teachers of further education courses, were selected as experts, as well as the students' experience of practice at schools (both urban and rural schools) was collected. Observations and practical experience analysis were also made.

Nowadays various cognitions of educators, education specialists of 1920s-1930s (K.Dēķens(1919); A.Dauge (1925); E.Pētersons, G.Keršenšteiners, J.Students (1935), R.Zeidels (1926) etc.) have not lost their topicality as the latest pedagogical insights into handicraft training of that time.

A number of authors' (J.Students, O.Svenne, K.Obšteins, M.Štāls, etc.) pedagogical and psychological content works are based on the importance of practical work in children's development. According to J.Students, children's physical aptitude and ability education is important (Students, 1935, 135). In his turn, A.Dauge acknowledges that it is also important to develop pupils' ability of observation and comparison skills using many different ways (Dauge, 1925, 5). But the author does not reveal what these ways are. Not a single publication reveals methodological techniques of teaching handicraft, including paper folding in terms of the pupils' development.

When acquiring paper folding skills, it is necessary to find such methodological techniques that would encourage students to think, analyze, seek, and at the same time to acquire skills at such a level so that it would be possible to implement the original intention and be important for the pupils' development. It is particularly important to accept pupils' various activities (independent, creative, cognitive, collaboration, search activity). It is also possible when acquiring a technology of handicraft, using a variety of methodological techniques.

Therefore, one of the pupils' development preconditions is "SELF" awareness, stimulated by **variability of methodological techniques** in paper folding training. It was worked out by taking into account the psychologists' cognition that at not any other school age learning is so closely connected with *health condition* and *physical development* as at the youngest school age.

Nowadays, K.Dēķens's cognition that the hand muscles efficiency promotes the brain development, develops vision, tactile sense, memory, especially in younger grades is still important. K. Dēķens emphasizes the idea that mental development is promoted by the development of senses of movement, tactile sense and muscle development (Dēķens, 1919, 152).

The variability of methodological techniques in the acquisition of paper folding skills was also defined by D.Elkonin's cognition that the acquisition of a new learning technique enriches and transforms a pupil, making it possible for new abilities to appear in his development. Our study was based on D.Elkonin's cognition that for children at the youngest school age:

1. It is typical to have such new formations of the psyche as internal planning, self-control.
2. Out of all the scope of the psyche, intelligence is mainly developed.
3. Children at the age of 7-11 continue to evolve *the sphere of needs and motives* typical to the internal development periods, as well as *the cognitive process* (Эльконин, 1974, 14).

It is important in paper folding to find such items that cause *interest*, so it is significant to discover *motives*. A motive can be expressed as the need associated with the interest. For example, folding a glass from paper for a field trip. By changing a methodological technique, i.e., in the classroom,

experimenting with a glass and water, pupils develop attention, observation skills, while at the same time ensuring the link with practical life. It should be noted that the result of the experiment serves as the contributing factor for pupils' cognitive activities that approximates training activities to the research activity. It is observed that in practice, the interest about a definite item and its production derived from the manufacturing of practical items is maintained for a longer period of time; as a result, pupils fold several different glasses of different sizes. It should be noted that multiple repetition of the activity is a good practice for the finger muscles; it develops intelligence, promotes "SELF" awareness, and at the same time imperceptibly improves pupils' working skills.

Sometimes the final result is significant not only for pupils, but also for others. For example, when folding the premises decorations. Consequently, there is a possibility for pupils to please others, as well as to acquire a cooperation skill when working in groups.

Significant changes take place in the youngest age group pupils' memory and its processes. Development of memory, according to Dz.Meikšāne, is closely related to the development of perception, thinking, imagination, language, will and feelings, with a pupil's personality traits development in general (Meikšāne, 1998, 137).

On the other hand, thinking is evolving from visually specified to abstractedly logical, so it is crucial for pupils to learn to find the logical interrelations between information units by comparing, finding similar and distinctive features, to learn how to plan their activities, as well as to judge logically. No doubt that by means of any activity in the paper folding pupils *develop a detailed finger musculature,* both hands coordination is trained. The importance of folding paper is acknowledged by I.Puškarevs, that the left brain hemisphere is dominated by a long-term memory, but the right brain hemisphere is dominated by a short-term memory (Puškarevs, 2001, 36). *In accordance with the content of the information to be retained,* a distinction is made between an imaginative, movement, emotional and conceptual memory (Ļubļinska, 1979). Consequently, in order to facilitate the development of better memory, it is recommended that pupils learn more in paper folding, using a variety of methodological techniques.

Thinking takes a significant part in paper folding. Thinking and activity are closely linked in practice in the solution of new unusual tasks, in the task conditions accomplishment. For the development of memory and thinking it is recommended to create a three-dimensional products consisting of several equal size, equal folding details. For example, a final product - **cube** consists of **6** equal squares (Table 1).

Table 1

Pupils' autonomy, thinking, reasoning, comparison skills development opportunities in paper folding, when bending and constructing the cube

No.	The teacher's activity	The pupils' activity
1.	Demonstrates the finished product.	Prepare **6 equal-sized squares** (square colours:- 2 light in colour, 2 dark in colour, 2 of medium tone (other variants possible)).
2.	Demonstrates folding in one square.	Fold the square in accordance with a teacher's demonstration.
3.	Works as a consultant (encourages pupils to work independently, i.e., in accordance with the previously folded material, if there is a necessity it is unfolded).	In the same way they fold the remaining 5 squares from memory (independently).
4.	**1st o ption.** Explains the assembling principles of folded squares. **2nd option.** Issues the technical drawing pieces for assembling to the pupils.	Constructs **the cube** independently.

When folding, pupils experience a surprise, joy and satisfaction for the new product, which also has a practical application, or for the product that moves. Possible products: birds, a crow, a barking dog, etc. It should be noted that the tasks have to be chosen in accordance with the pupils' age group, as well as individual characteristics. In order to promote *visual* memory, *hearing* it is necessary to find the appropriate methodological techniques in paper folding.

For the hearing development a teacher or a pupil explains the course of the folding in words, step by step without using visual aids. Possible products: a table, a photo frame, etc.

For the speech development:

First option. Pupils work in pairs. One of them receives a technical drawing, gets acquainted with it. Not showing the drawing to the other pupil he explains the sequence of folding. Then they change the roles. Receive the new technical drawing for folding. *A note* – pupils need to rethink the choice of words, sentences, so that the other pupil can fold the product in accordance with their narration.

|*Second option.* Each pupil receives a technical drawing. And bend, fold, tell the rest of the explanation and demonstration.

Third option. Pupils independently invent a new type of fold, or figure out some parts of the fold they create a composition from. Pupils introduce others to the invented fold or its application, paying attention to the outline of the folding sequence, its name, application or even advertising.

Table 2

Pupils' development opportunities in paper folding

No.	Teaching techniques for paper folding skills in terms of the pupils' development	Learning aspects (The National Standard of Basic Education, 1998).	The main directions of pupils' development
1.	Teacher's demonstration and verbal explanation.	The aspect of learning and practical activity.	Observation, attention, concentration abilities.
2.	Just a teacher's demonstration („A Dumb Show").	The aspect of learning and practical activity, analytically critical aspect.	Observation, attention, thinking, concentration abilities.
3.	A teacher's gradual verbal explanation in sequence.	The aspect of learning and practical activity, analytically critical aspect.	Observation, attention, thinking, concentration abilities.
4.	A teacher's verbal explanation to all the pupils, then the pupils fold independently from their memory.	The aspect of learning and practical activity, analytically critical aspect.	Memory, thinking, perception, independence.
5.	Manufacturing of the product from parts according to the teacher's demonstration: • gradually in turns with all the details. • one component, the others are accomplished by pupils independently, • each pupil folds one detail, they construct it jointly.	Analytically critical aspect, mathematical aspect, social cooperation aspect.	Observation, thinking, memory, independence, cooperation.

No.	Teaching techniques for paper folding skills in terms of the pupils' development	Learning aspects (The National Standard of Basic Education, 1998).	The main directions of pupils' development
6.	In accordance with the technical drawing in pairs or in a group.	Social cooperation aspect, evaluation aspect, communication aspect, mathematical aspect.	Cooperation, thinking, power of reasoning.
7.	Independently in accordance with the teacher's gradually developed folding pattern.	Mathematical aspect, analytically critical aspect.	Thinking, independence.
8.	Independently in accordance with the developed product.	Mathematical aspect, analytically critical aspect.	Thinking, independence, searching activity.
9.	Independently in accordance with the technical drawing.	Analytically critical aspect, mathematical aspect, evaluation aspect.	Independence, thinking, power of reasoning.
10.	Creative tasks.	Self-expression and creative aspect, social (cooperation aspect).	Thinking, imagination, fantasy.

It should be noted that the same type of fold is likely to be bend by using various methodological techniques, thus creating pre-conditions for the pupils' development.

Undoubtedly, mutual interaction between the learning environment and the teacher's competence results in *the development of pupils' emotional world*. This is particularly important for those who have a variety of communication problems, excessive shyness or, on the contrary, the unnecessary aggressiveness. Depending on the teacher's skills to organize training activities several *learning aspects* are implemented at the same time or some of the learning aspects mentioned in the table are missing (Table 2).

Paper folding in younger grades also develops students deliberate attention, which is more required in the further learning process. Not only for the development of deliberate attention, but also for that of the perception, memory and thinking, it is necessary to have:

- Suitable pace of work,
- Easy-to-understand, perceptible teacher's explanations,
- The instructions provided prior to the commencement of work and which are not repeated during the task accomplishment.

Paper folding may involve different tasks, which are particularly successful in integrated training. It is possible to use folded pieces in the puppet theatre performances where pupils speak or even sing the text, while acting with the folded figure at the same time. Paper made hats (the original form as a square or rectangle depending on the model of the hat) are practical for travelling to the forest in sunny weather picking up berries, mushrooms or repairing the premises.

Various methodological techniques undeniably make paper folding more interesting. Paper folding is matched with both – *seriousness, burden* and *fun*, and therefore it is significant for pupils' development. Nowadays, R.Zeidels' cognition has not lost its topicality that handicraft is the future of teaching and a method of education, and the only one that is capable of fulfilling the requirements of harmonious upbringing (Zeidels, 1926, 12).

Results and discussion

An empirical study involved 114 full and part-time students, prospective elementary school teachers, 126 elementary school teachers from further education courses. Students' experience of practice at schools (both urban and rural schools), at elementary school grades (237 pupils) was collected.

At the beginning of the study, when choosing folds with the same degree of difficulty, the pupils' ability to fold was cognized in accordance with four methodological techniques (verbal, only demonstration, demonstration and verbal technical drawing).
Summarizing the results of the study, we ascertained that 72 % out of 237 pupils had the best folded figure after a teacher's demonstration and explanation (Figure 1). It is interesting to note that after the teacher's demonstration 78 % of pupils coped with folding successfully. It was significantly harder for pupils to cope with the technical drawing (27 % of the pupils), and with verbal explanation (65 % of pupils).

In the present research we repeated the same folding types with elementary school teachers and students - prospective elementary school teachers. It should be noted that there are 90 of 126 elementary school teachers who are not the teachers of home economics and technologies, but they all acquire the teaching methodology of the subject of "Home Economics and Technologies", including paper folding techniques.

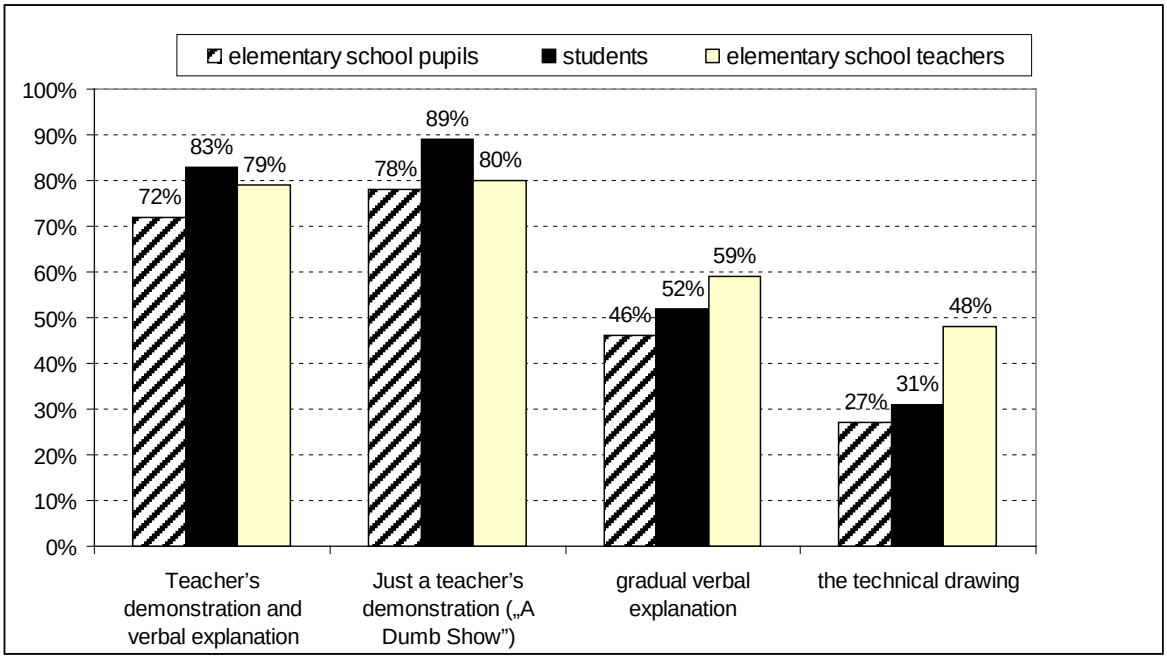

Figure 1. Paper folding skills in accordance with different teaching techniques.

Once again we ascertained that within the educational process, including handicraft lessons, we do not think enough about the role of emotions in children's development.

Reflection is caused by the figures that characterize the respondents' ability to proceed with paper folding in accordance with the technical drawing and verbal explanation. The results obtained revealed that it is the most difficult to fold the figure in accordance with the technical drawing. Only 27 % of pupils were able to fold it independently in accordance with the technical drawing. The percentage of pupils' skills evaluation is not high as well, i.e., 31% of respondents. The task was relatively more successfully carried out by elementary school teachers, i.e., 48% of respondents folded products independently in accordance with the technical drawing (Figure 1). The results obtained confirm the fact that pupils and students have not sufficiently mastered the ability to work independently by a description, technical drawing. It is associated with effort, will power, thinking, perception, and sometimes even reading skills. This is evidenced by the observation that in practice the mastering of harder techniques, especially on one's own, is closely associated with the effort of will. Effort and will power, according to N.Picka, are necessary not only for the acquisition of new material, but also for personal development it is significant that the will is based on the force of mental activity (Picka, 1990, 83).

It is as just important for pupils to acquire the ability to listen. The results obtained show that all respondents' ability to listen is not at the sufficient level. Comparing the respondents' ability to fold

the figure in accordance with the verbal presentation and demonstration, we can conclude that they can better proceed with folding after the demonstration and verbal explanation than from the outline of the folding course (Figure 1). As observed in practice, the learning process is mainly dominated by the frontal work, teachers use the explanatory illustration method, so the respondents involved in the study had the difficulty of paper folding in accordance with the hearing (the verbal explanation). During the study we observed insecurity, despair in respondents' eyes, when the teacher did not demonstrate anything, at the same time their eyes desperately looked around, also looked at the partner in order to accomplish the fold. It indicates the respondents' distrust to their abilities, fear of making mistakes, but it mainly indicates the domination of one methodological technique in the teaching process, which adversely affects the pupils' development.

In the course of the study, after a week, we asked the respondents to fold the same fold again from the memory, which were folded in accordance with the four teaching methods. It is interesting that only 15% of respondents were able to fold the shape, which they had folded in accordance with the technical drawing. On the other hand, 37% of respondents were able to fold the shape, which had been folded in accordance with the verbal explanation. It was surprising that one product which was folded in accordance with the teacher's demonstration and verbal explanation a week ago caused the difficulty to remember for all of the respondents. The results obtained confirmed D.Voita's and V.Perepjolkina's and S.Dzērve's explanation, if students have a clear purpose and application of a particular job, then memorizing is consolidated (Voita, Perepjolkina, 2008). We would like to add that as much importance is granted to the choice and diversity of methodological approaches throughout the training process. It was also confirmed by the results obtained, because the pupils could remember the course of the fold best of all in accordance with the methodological approach "The Dumb Show". The explanation is connected with the fact that folding gave the greatest pleasure to the pupils. Once again we ascertained that in the educational process, including paper folding, we think too little about the role of emotions in children's development. The study results confirmed E.H.Ērikson's cognition that emotional mood affects pupils' psychic processes: attention, memory, thinking etc. and the information the pupils perceive with the inner emotional response, is stored in the memory and becomes personally significant for a pupil (Ēriksons, 1938).

The obtained results of the study reveal that pupils have low parameters with regard to memory. In only one first grade of Riga elementary school the pupils' knowledge and skills in paper folding in spring were at such a level that the student found it unable to lead the practice of paper folding there, because pupils were smarter than her, since from September this grade had had classes of *origami* one lesson per week. During the process of the study we observed that as a result of the success, not only pupils', but also students' and teachers' self-esteem and confidence of themselves increased. Paper folding successfully develops all mental processes. It is to admit that mental development boundaries of elementary school pupils are defined by their individual level of development and peculiarities. And yet intellectual attention, according to D.Voita, V.Perepjolkina, S.Dzērve, increase the effectiveness of such mental processes as memory, imagination and thinking. Conscious attention belongs to the higher mental functions and is only typical to a human being. The provoking factors are not arbitrary changes of the object or the environment, but the aims of human activities. Conscious attention implements the achievement of the objective of this strategy and its execution control, while focusing the attention on this objective is the result of human will activities (Voita, Perepjolkina, 2008, 1). The results obtained confirmed the assumption that the pupils' development is promoted by variability of methodological techniques, especially if the paper folding is acquired over an extended period of time, as it is shown in the example of an elementary school in Riga, and if it is closely related to emotional experience.

Undoubtedly, a teacher, particularly in elementary schools, to a large extent, contributes to the pupils' development by choosing such methodological techniques that students will master learning skills as significant to themselves. As a result of the study we ascertained that the pupils' development takes place more efficiently if a training activity, including the paper folding, is associated with emotional experience, non-traditional activities and that in the paper folding, it is necessary to choose such methodological techniques that will:

- seem to be complicated for the pupils initially – so that there is a chance to overcome burden, which then creates a sense of satisfaction, promotes the formation of self-confidence,

- • learn to overcome themselves, take into consideration other people's interests – it is the need, necessity for the development of both general and communicative skills,
- • pupils feel the need, contribute to the habit of searching for other more interesting folds,
- •encourage students to work independently, without external assistance,
- • be related to practical daily life.

Conclusions

- One of the preconditions of pupils' development is their "SELF" awareness, which is stimulated by the variability of methodological techniques of the paper folding training.
- In the aspect of the pupils' development the variability of methodological techniques of paper folding is characterized by: included didactic elements (knowledge, activity of imitation, experience of activity, experience of attitudes); conformity to the principles of education, specific character of gender, pupils' experience; pupils' autonomy, topicality that strengthens the will, is associated with a positive emotional experience; the principle of gradualness, its compliance to the pupils' age group peculiarities, the possibility to implement educational aspects emphasized by the National Standard of Basic Education; practical applicability of the product; non-traditional methodological techniques; astonishment experienced within the paper folding process.

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Development of vocational education and career development

CAREER GUIDANCE FOR YOUTH WITH SOCIAL RISK STATUS

Zenta Anspoka[1] Dr.paed., **Inta Lemešonoka**[2] PhD student
Riga Teacher Training and Educational Management Academy[1], Manager and Guidance Counsellor in Career Guidance Centre for Youth and Parents[2]
zenta.anspoka@rpiva.lv[1], inta.roks@gmail.com[2]

Abstract. The importance of the issue in question should be underlined due to several conditions. According to research approximately 29% of young people have problems in finding self-confidence and possibilities to continue education or to enter labour market. Some of them are dropouts and do not have compulsory education or have graduated vocational school without any professional qualifications. Some of them have certain health conditions, language and speech disorders, learning difficulties, social behaviour problems or special individual needs.

The aim of the study is to draw attention to economic, social, psychological, pedagogical and linguistic problems in schools and families and to offer solutions for career guidance as a way to help individuals apply the obtained knowledge and skills when decisions should be made concerning their career development.

The quality of career guidance is determined by the professional competence of a career counsellor and by the competence of a school teacher or class master. It is not just counselling or providing information to the client according to his or her individual needs, but also involves cooperation with various institutions responsible for human resource development; it also requires managerial work experience, skills for using information technologies, emotional intelligence etc.

The information about general problems and possible solutions in this abstract is based on research by scientists of pedagogy and psychology, experience of career counselling centres and professional competence shared by school teachers or class masters.

Keywords: youth with social risk status, career, career guidance.

Introduction

In analysing the mentioned study we would first of all like to clarify terminology: a youngster of social risk status is the one in age of 16 to 24 who, under the impact of social economic or other factors, is systematically missing school or becomes a drop-out without even basic education qualifications, as well as the one without any experience for entering labour market.

Every seventh youngster in Europe discontinues formal education without a secondary education qualification. Thus he/she acquires a social risk status and feels a growing insecurity about own life (Guiding at-risk…, 2010).

After regaining independence of Latvia the number of inhabitants with insufficient formal education levels has grown. This includes 19% of young people who in the age of 16-24 have only basic education and do not continue studies. It is the highest indicator in the Baltic states (10.3% in Lithuania, 13.2% in Estonia) (Bebriša, Ieviņa, Krastiņa, 2007).

An insufficient level of initial education leaves a significant impact on career development. One should note that the notion of career has changed and considerably expanded in recent decades. Initially we understood the notion of career as a successful activity in a professional area with possibilities of promotion, fame and popularity while today the term "career" is understood not only as progress in a professional area but also as a purposeful development of one's personality and a consecutive change of one's professional activity types during lifetime (Karjeras attīstības…, 2008).

It means that today every youngster should earlier or later grasp that in the 21st century one cannot learn a profession and acquire other skills for the whole life. In modern times every area of human activity is submitted to continuous development and change. Career development is closely related to purposeful studies and, what is most important, to the understanding that one should be ready to use

all available resources for reaching his or her aims in a chosen area of life for the whole length of it (Landzmane, Landzmanis, 2009).

The aim of the study is to draw attention to economic, social, psychological, pedagogical and linguistic problems in schools and families and to offer solutions for career guidance as a way to help individuals apply the obtained knowledge and skills when decisions should be made concerning their career development.

Materials and methods

The article analyses theories on youth career development and its guidance, and results of empirical studies carried out within various projects and during the work in Career Guidance Centre for Youth and Parents. In gathering data we used observations, inquiries, tests, surveys, individual interviews, couple or double and family guidance methods helping to learn about young people's career guidance needs. Respondent group consisted of young people receiving career guidance services in career guidance centres, and teachers working with youngsters in various education institutions (general and vocational schools, vocational colleges, special education schools).

Results and discussion

In order to help at-risk youth to plan their career, one should be aware of their psychological and social type and reasons for falling into this condition. Results of empirical studies show that young people are submitted to social risk no matter whether they come from a well-off family, low-income family or a socially disadvantaged family.

The most important reasons for falling within a social risk group are as follows:

- dropping out of school with no basic or upper secondary education qualification;
- inability to follow school requirements and underachievement due to low performance in previous education stages;
- frequent unjustified absence from school resulting in insufficient curriculum completion;
- completion of vocational studies without certification resulting in limited possibilities to enter labour market;
- being out of Latvia for a longer period of time resulting in a difficulty to adapt oneself in a particular school or labour environment;
- no physical and emotional support from family for studies or finding a job;
- inability to cope with everyday a. o. problems occurring in family or school;
- drug or other addiction since early age;
- attention deficit syndrome, very low self-confidence and self-esteem, low self-organisation and socialisation skills;
- learning difficulties due to low level of perception, bad memory, way and speed of thinking a. o. problems of psychological character;
- existence of special needs, even mental retardation;
- health problems requiring regular medical help, insufficiency of means or determination to address the issue;
- social behaviour disorders, ignorance of socially accepted behaviour norms, aggressiveness etc.
- significant age gap with other school mates resulting in lack of emotional comfort in the group;
- originating from a minority family and learning in a school with the Latvian language of instruction according to the submersion model ("the student is thrown into the deepest end of the swimming-pool despite the fact that he/she cannot swim"); this situation causes high stress levels and decrease of self-esteem.

When clarifying family conditions of young people with social risk status, in 87% of cases it turns out that social circumstances in families (more than often young people do not live together with both parents or have even broken up ties with their biological families; open market situation shows that

part of children have the so-called status of 'European Orphans' as during the absence of parents they stay at grandparents or have guardians) are of highest importance.

In surveying young people to find out reasons for irregular school attendance or dropping out the results show that 10-14 % believe the situation in schools is difficult: curriculum is too complicated, they have difficulties to learn and don't receive individual support, too much homework, conflicts with teachers who, in their opinion, don't understand them. Young people believe that teachers use unproductive teaching methods, and frontal work prevails. When changing schools or progressing from one education level to the next, teachers change, too, and this hinders successful integration within education process. Dislike felt by at-risk youngsters against a particular school and unwillingness to attend it may also be caused by inconsiderate school policies, e.g. the pupil is not admitted into the class because he/she does not have the required school accessories and study materials, or wears clothes, styles or haircut unacceptable for the teacher etc. Not infrequently do schools avoid working at-risk youngsters in order to preserve their good status. An outcast from one school may lose motivation to proceed with studies in any other school (Bebriša, Ieviņa, Krastiņa, 2007).

In discussions with career counsellors youngsters admit that often they do not understand themselves, changes in the society and the way those will affect their career paths, are not able to analyse their short life experience, interests and talents. They are waiting for someone to prompt what and how should be done, where to study further, what is necessary for studies and future working life. Also, if someone still counsels them in the mentioned issues (subject or class teachers), it is mainly done in a formal way. Young people do receive information what can be done after finishing basic or upper secondary school, however advice on what possibilities are most suitable, is often missing. The youngsters believe career guidance experts are able to help yet are rarely informed where to find such.

Teachers, on their part, admit that their work with young people is becoming more difficult from year to year: classes or study groups are becoming more heterogeneous, there are certain problems that have come up only recently and not everyone has experience how to act in such situation, e.g. teachers are informing of always growing numbers of youth with low learning motivation. 30-40% of pupils do not receive the necessary support from their families, and for them school is the only place where they are assisted in doing not only study tasks by also to solve economic and social issues which, as a matter of fact, fall under the responsibility of families or social services. Teachers also indicate problems related to school environment such as insufficient material basis, low-spirited emotional settings, avoiding working with pupils with social behaviour problems, and ignorance of not only traditions and native language of most school children, but of those of minority pupils as well. Teachers would like to have been more trained in education management, methods of bilingualism and bilingual studies, use of ICT. Characteristic features of teacher personality (sensitivity, tolerance, patience) are very important as well, as they help to create suitable emotional climate in heterogeneous pupil groups. Sometimes insufficient collaboration or non-professional collaboration between school and families serve as hindrance.

Often schools provide insufficient care for organising additional study work for children with learning difficulties. Also, oversized classes hinder curriculum completion – teachers are overloaded and not able to ensure personalised approach to everyone and to notice learning difficulties in good time which may serve as a first step to social risk for a youngster (Bebriša, Ieviņa, Krastiņa, 2007).

Good knowledge and skills help not only to enter labour market but also make a successful career today in the conditions of changing technologies and economies. It is important to understand that education is not only accumulation of specific competences and qualifications, but also a process of developing talents, emotional and social intelligence and personality (Latvijas ilgtspējīgas…, 2010). It means that to offer a suitable and timely career development support for young people who have come to a social risk status, is a live issue for the society.

The system of career guidance and support as one of public service types includes services and other measures to help individuals of any age, including youngsters, to choose the area of education, training and employment and purposefully shape their career at any place and time of their life. Such services are provided in schools, vocational colleges, universities and other education institutions, also in work

places and specially established career guidance centres. Career guidance and support serve also to help overcome problems of psychological or social character (Landzmane, Landzmanis, 2009).

Career planning is closely related to decision-making and action planning and analysing skills. However this experience may only be gained if one is first informed on various employment areas. This includes knowledge on economy areas, understanding one's interests and skills, ability to learn and acquire information on employment possibilities, knowing why people change their job, different job tasks in various activity areas, accepted behaviour etc. (Ertelts, Šulcs, 2008; Garleja, 2006; Patton, 1999).

Most of the mentioned skills may be learned already in schools with good career education, i.e. with a provision of planned activities, courses, programmes in order to give youngsters a chance to acquire competences and skills necessary to commeasure their interests and skills with actual possibilities, to put forward their career aims and to fulfil them, to understand the world of work and its relation to education (Karjeras attīstības…, 2008).

One of the most important skills lacking in at-risk youth is the skill to learn. As a matter of fact, the teacher, with his or her personality and professionalism, has the most essential role in acquiring this skill. It is important to perceive learning as a meaningful activity. Positive emotions, settings admitting the use of sensory a. o. experience, conditions requiring analysing, synthesizing, comparing, generalising etc. encourage the pupil to think and act creatively.

48.5% of at-risk youth population includes pupils with various learning disorders. It is known that pupils with such difficulties get upset and confused even when carrying out the simplest tasks. If the teacher does not take it into account and fails to act so that during learning process the pupil has as little negative experience as possible, learning for them starts to associate with something unpleasant, undoable etc. This results in a negative attitude towards studies, and also creates conflict situations between pupils and teachers and behavioural problems in pupils. No matter what learning disorder reasons – whether they are created by physiological or external conditions, irrespective of learning disorder level (starting with elementary reading problems to psychologically complicated learning disorders), all these pupils have a common problem – learning for them means to fail. Everybody has an inner need to be convinced that his or her knowledge and opinions mean something to others. This stimulates to involve in learning process and gain at least minimum satisfaction from it. Only success gives the joy of victory while defeat is upsetting. To be a successful learner one needs help to overcome losses and defeat and, after that, not to perceive oneself as a loser (Riņķis, 2002; Rimma, 2000).

Taking into account that youngsters often value their skills to learn and study results by how others think, enough attention in teaching process should be paid to the development of self-confidence assuming the so-called success-oriented guidance. Success-oriented young people are willing to learn and are more resistant to failures and frustration. Success-oriented school policy stimulates better achievements, especially ability to overcome hardships and successfully fulfil new tasks. Some features characterising a success-oriented teenager are as follows: consideration of any problems as a challenge to his or her strength, recognition of failures without looking for excuses and fault in others, constant search for possibilities to prevent failures, desire to reach particular learning objectives. Both helplessness and success-oriented behaviour are not related to one's intellect: it is a personal quality, a way the youngster sees him- or herself, is able to treat other people and cope with different conditions (Fišers, 2005; Hargreaves, 2004).

An important role in youth career development is played by their self-esteem. It helps to get to know oneself, one's interests, talents, skills, temperament, character etc. In encouraging the youngster to self-assess his or her daily learning results the teacher may strengthen pupils' inherent value, to enhance faith in one's own abilities, to help perceive learning process as a purposeful and personally important activity. One should remember, though, that a youngster tended towards irregular school attendance and having other characteristics bringing nearer to the social risk status, should be able to differentiate self-esteem from uncritical self-satisfaction. Every youngster's self-dependence and responsibility is equally important. Modern social and economic environments constantly create non-standard situations which can be interpreted in various ways, and everybody has to be aware of his or

her role in today's culture, ability to provide certain contribution to the society in terms of time and space, according to one's experience and moral values (Garleja, 2006; Patton, 1999).

In order to prevent dropping out of school and low learning motivation, one of possibilities is development of personalised study programmes – they involve improvement of learning skills in basic and upper secondary school, especially in subjects providing basic skills necessary for continuing education or finding a job. It is especially important to support those youngsters who need to improve their literacy and numeracy skills.

One of most important values of a multicultural society is multilingualism. Language variety is a treasure, as it helps to learn about cultural heritage of various ethnoses, to mutually enrich one another and to integrate in education or labour environment in an efficient way. In learning process it is important to be aware that language is not only the means of communication, but also a means of thinking, a discoverer of individual and collective culture, a maker of impact on mutual relations, another means for self-development. The more successfully the youngster has acquired language skills, the better he or she is able to socialise, to acquire the necessary information or express his or her opinion, to defend it both in speech and writing in correspondence with established language norms. A youngster with good skills of several languages is more able to grasp a particular situation, prognosticate its development and find his or her place in it (Anspoka, 2009).

The system of assistant teachers approved in several European states for supporting pupils with prospects of retention encourages a successful integration of such pupils in education process. At the same time, it makes it possible to duly notice individual problems in the family, between peers, with teachers etc. (Guiding at-risk youth through learning to Work across Europe, 2010) If the teacher purposefully orientates teaching activity towards a mutual cooperation and finds learning objectives together with the pupil, he or she creates conditions for assuming responsibility and active participation in teaching process, and at the same time pupil's professional values may form, too (Rozenblats, 2001).

Individual interviews with career guidance clients, i.e. young people who face problems with learning, makes one conclude that a timely intervention is what helps these youngsters not to alienate from school. It is especially important in the stage of transition from basic school to a vocational or upper secondary school: according to empirical studies it is the time when many youngsters start breaking their ties with education and fail to find any other socially important occupation.

Learning young people's needs both in educational aspect and personal and social aspect is important. Correct determination of a youngster's needs makes it possible to offer a specially designed guidance suitable for a particular life situation. If the youngster tends to wander and is already leading the so-called wanderer lifestyle, completion of a certain curriculum in a particular site of attendance may be replaced by distance learning or electronic study ways. If the pupil, due to many absences or termination of education, has not acquired certain competences and basic skills of learning, one may offer additional individual support for learning the necessary skills. If the pupil does not have sufficient life management skills, guidance staff should involve in solving the youngster's social matters, e.g. helping to get material support for ensuring school attendance, provision of study materials or travelling expenses. It is very important that when communicating with at-risk pupils counsellors are considerate and keep benevolent attitudes without prejudices and stereotypes. The pupils should be helped to be aware that their general education level will have a direct impact on their welfare and competitiveness later in life and will also promote economic growth of their families and the state. The school's role in this process is invaluable: it should be responsive towards the different and often complicated needs of individual pupils, and it should ensure that pupils finish it with sufficient knowledge and motivation to take up responsibility for studies during their whole life (Karjeras izglītība…, 2010).

Teacher support staff in education institutions bears an important role in preventing risks and promoting guidance. Individual consulting provided by psychologists, social pedagogues, school career counsellors and medical workers is an inherent part of youth career development system. Often one needs to think behind traditional stereotypes and to find individual approach to each pupil's situation.

In career guidance there are different methods and approaches for assessing one's interests, suitability for a certain job, attitudes and values. If those methods are coupled with purposeful interviews with the client, the youngster is able to learn to be aware of his or her talents, skills, level of knowledge and skills, to choose a path of education or working life, to learn taking decisions and carry out autonomous career planning (Career counselling…, 2007).

Individual professional guidance and other support may be integrated also with social inclusion measures. An important role in integration measures is played by non-formal and informal support provided by family, friends, peers, informal education teachers, trainers, members and leaders of non-formal organizations. Some studies show that often multilateral cooperation is more effective in providing support to a successful at-risk youth career development than mutually unrelated pedagogical upbringing (Guiding at-risk…, 2010).

Career support system should also include measures addressing young people's free time: possibilities to do different types of sports, hip-hop dancing etc. to help free oneself from tension, stress and even aggression accumulated during daytime. In dance there is a need to express and move oneself, to set oneself free from accumulated negative or spare energy and instead gain positive and balanced energy. After such dance classes one reaches a balanced mood. Dance not only helps to employ one's physical skills, but also develops one's mind, establishes an emotional attitude towards the surrounding world and oneself, and coins one's values. (Baylor, Taylor, 2007).

Other types of art or sports may help as well. One should remember that for youngsters it is important that those involving them in various free time activities become their authorities and are able to listen and not reject and to create a situation that every youngster's opinion is counted with and everyone's success is a reason to be proud. This is what raises motivation in young people for further activity in order to look and find both personally and publicly important occupations in a particular social and economic environment.

Conclusions

- Social portrait of youth-at-risk and reasons for their situations vary. It depends from settings where they grow and develop, from teaching process quality in various education stages and individual needs (health conditions, self-confidence, level of self-esteem, learning experience, level of language skills etc.).
- In order to help at-risk youngsters in their career development one should count with their possible previous negative experiences; they are not able to carry out objective evaluation of their skills, interests, changes in society and the impact these may have on their career. Often these youngsters are waiting for someone to prompt what and how should be done, where to study further, what is necessary for studies and future working life.
- One of the most important skills lacking in at-risk youngsters is the skill to learn. Independently from the character of each individual's learning disorder, all of them have one common trait – learning is associated with failure. In order that learning becomes more successful, it is important to have positive settings where the youngster may regain self-confidence, a skill to self-assess his or her experience and assume a success-oriented approach.
- One of possibilities is to create personalised study programmes, especially if they involve leaning of basic competences like literacy and numeracy which make a basis for continuing education or finding a job.
- A timely help by career counsellors for at-risk youngsters helps to effectively prevent alienation from school, especially when passing from basic school to vocational or upper secondary school, and to find another socially important occupation.
- It should be taken into account that in career guidance there are different methods and approaches for assessing young people's interests, suitability for a certain job, attitudes and values. If those methods are coupled with purposeful interviews with the client, it is possible

to help find one's talents, skills, level of knowledge and skills, to choose a path of education or working life, to acquire the skill to prepare for taking decisions and autonomous career planning.

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USAGE OF CAREER COUNSELLING METHODS

Līga Damberga, Mg. paed., Mg. ed.
Latvia University of Agriculture, Latvia
Liga.Damberga@llu.lv

Abstract: Over the centuries the perception of career has changed. Now it is not only a choice of profession or moving up the career ladder, but also a person's intentional and targeted self-perfection, self-realisation and goal setting and achievement. Nowadays, on the one hand, career counselling has to be more dynamic, flexible, imaginative and creative, but on the other hand it has to solve more complicated and difficult problems in relation to career perspectives throughout the lifetime. Career can be performed both individually, and in a group. It can be expressed both as giving an advice and promoting or supporting and informing, therefore career counselor's competence and his/ her rationally and advisedly chosen counselling methods play a big role. One of the problems in career counselling is that career theories are torn away from the praxis, which adversely affect career counselling, as well as choice and usage of career counselling methods. The research gathers information about classification of career counselling methods and studies the application of career counselling methods in Latvia.

Keywords: career counselling, career counselling methods.

Introduction

Career evolution theories and methods of the 20th century met with difficulties, because they were based on stable results, fixed career stages and predictable evolution, where stable individual abilities, skills and qualities of a person are essential. Nowadays, there is a rapid development of information technologies and the labour market demands necessity for new working skills; we can observe population's aging in Europe and Latvia; the globalisation starts to affect every single person, therefore the career counselling of the 21st century must be based on people's adaptability, flexibility and lifelong learning. Furthermore, by creating new methods in career counselling, it must be find a more dynamic approach, which promotes imagination, creative thinking and self-estimation of individuals. Counselling methods should focus on life strategies, survival, and dynamics instead of information or contents (Savickas, Nota…, 2009).

There is no unified classification of methods and techniques in career counselling theories. Different concepts and explanations are used in career counselling theories, e.g., methods, techniques, models, estimations. Career counselling process and organisation may vary even in different countries, which determine usage of different counselling methods.

Methodology

The goal of the research is to gather information about classification of career counselling methods and to study career counselling methods that are used by career counsellors, who are working in Latvia. The research was done as a survey, study and analysis of the literature, as well as a reflection of personal experience. A survey method was used in order to clarify, what kind of career counselling methods are used by career counsellors most frequently in their work. Fifteen career counsellors from different regions and organisations of Latvia took part in the survey, and their experience in career counselling varies from one to eighteen years. It also has to be mentioned that these counsellors are working with different target audiences (unemployed persons, job seekers, employers, business persons, pupils and parents).

Based on definition, in which is stated that career counselling embraces assistance in career planning, determination of professional suitability, as well as job seeking and maintenance acquiring skills (Karjeras konsultāciju…, 2009), three criteria were moved forward in order to evaluate career counselling methods:

- methods used in career planning,

- methods used for assessment of occupational suitability,
- methods used for acquiring job seeking and retention skills.

Based on the literature study, 33 most frequently mentioned career counselling methods were chosen – Holland Code Test, Interests' Tests, Interest Inventory Survey, Card Sorting Method, Curriculum Vitae (CV), Letter of Application, Clarification of Values, SWOT Analysis, Mock Interview, Autobiography, Self-Characterization, Computer-Based Self-Assessment, Narration, Case Study, Group Discussion, Brainstorming, Metaphor, Problem Solving, Decision Making, Role-Play, Personal Project, Investigation, Incomplete Sentences, Visualisation, Talking Circle, Tree of Life, Magic Wand, Life-Space Mapping, Way of Life, Future Visions, Social Support, Clients' Resources and Capacity, as well as Experience Assessment. Career counsellors have evaluated all 33 methods, based on the defined criteria – methods in career planning, methods for determination of professional suitability, and methods for acquiring job seeking and maintenance skills. Career counsellors have evaluated which methods are used in their work very often, and which are used frequently, rarely, never or they are not acquainted with such methods at all.

Results and discussion

During the times the perception of career has changed. Now it is not only a choice of profession or moving up the career ladder, but also a person's intentional and targeted self-perfection, self-realisation, setting of goals and their achievement. The concept of career has become wider; it includes family, job, spirituality, citizenship, free time, and even learning and development during the life-time. In different countries, the conception of career and career counselling varies.

In some countries career counselling methods are a part of career education programmes (in Australia, Germany, Finland, Sweden, Greece, the United Kingdom, etc.), but in other countries they are not included (Canada, the USA). In Canada, counselling methods are as following: assessment, instructing, informing, work experience, consultations, referral, placement, and follow-up. The instructing includes presentations in a group, lessons, life/ work simulation, role-playing games, as well as supervision groups. In Australia, in career education and support are used such methods as mentor's support, workshops, Mock interviews, work simulations, business games, excursions to work places, practices at work places, informative sessions, work interviews, as well as individual consultations (Career Development…, 2009; Athanasou, Esbroeck, 2008; Guerriero, Allen, 1998). By discussing the supporting politics of career development, the OECD (Organisation for Economic Cooperation and Development) names such methods as conversations in classes, career days, group work, test interpretations and personnel interviews (Career Guidance, 2004).

For situation analysis it is suggested to use such methods as career informing, assessment, interviews, work experience, practice at work places, career days, and international work experience exchange trips (Watts, Fretwell, 2004). For problem solving, in order to help integrate life and career goals, it is suggested to use verbal, visual and kinesthetic methods (Amundson, Thrift, 2008). For the assessment the most frequently used methods are autobiography, early memories, structured interviews and card sorting. Though these methods are not novelties in counselling, they may be new for career counselling (Patton, McMahon, 2006).

By classifying methods that are used in career counselling, following criteria has to be kept in mind: clients' needs, purposes and finances, which help the clients to perform counselling activities, process stages, phases of counselling sessions, types of counselling approaches, and tools' standardization degree. In compliance with counselling purpose, methods usually are classified according to several parameters (Karjeras konsultēšanas…, 2009, 17):

- methods for gathering information about the client: psychological test, inquiry, observing, interview, development's history, autobiography, self-characterization, school's characterization, focus group, public opinion survey, knowledge assessment test, analyse of biographic data, analyse of activity results, SWOT analysis (company's strengths, weaknesses, opportunities, and threats on the market), portfolio, etc.;
- communication methods: conversations, role-playing games, modelling, exercises, narration, pedagogic game, Philips 6/6;

- methods of client informing: materials that are used in order to distribute information to clients (notes, references, other mass communication products), professions' descriptions, lectures, conferences, personal reading, presentation movies, radio comments or TV shows;
- labour market research methods: exercises for development of job seeking skills, modelling of work situations, experience exchange trips, job shadowing, ICT in job seeking, educational fairs, job fairs, surveys in order to clarify requirements, work try-outs, particular case studies;
- personal marketing and information management methods: writing the CV and letter of application, participation in interviews, analysing/ preparation of mass media commercials, databases/ portals of education and training, professions, as well as work;
- methods of career planning and growth: strategy, personal projects, weighing alternatives, clarification of values, competence's overview.

D. Brown and L. Brooks (Brown, Brooks, 1991) divide methods of the career counselling in 8 groups:

- methods for getting into contact with a client;
- methods for acquiring the information form client;
- methods for communication with client;
- methods for informing the client;
- methods for examination of labour market's requirements;
- methods for personal marketing and information management;
- methods for career planning and development;
- methods for documenting.

In Russia, career counselling is included in psychology of professions. Counselling methods are based on two methodological principles (Зеер, 2006):

- subjective – based on self-examination;
- objective – based on usage of various external research resources.

Nowadays career counselling includes both assistance in career planning and determination of professional suitability, as well as job seeking and maintenance acquiring skills (Karjeras konsultāciju…, 2009), and for that reason some authors list job seeking methods separately. Job seeking methods are classified, by using two features (Van Hoye, Van Hooft…, 2009; Par karjeru…, 2012):

- character (formal and informal methods);
- belonging to specific job seeking stage (preparation and active operation methods).

During the preparation stage there is a gathering of information about potential work places by using different sources, but during the active operation stage there is an active communication with potential employers or their representatives (Blau, 1994; Saks, 2005; Van Hoye, Van Hooft…, 2009; Par karjeru…, 2012).

In Latvia, one of the largest career counselling methodology bases is owned by State Employment Agency (SEA), which offers individual career consultations, individual diagnostic career consultations, individual self-determination career consultations, group career consultations, group diagnostic career consultations, group informative career consultations, as well as electronic career consultations (Karjeras konsultācijas, 2010). For career counselling SEA uses following methodology and methods (Karjeras konsultāciju…, 2009):

- for interests' research – Interests' Test No. 144, Interests' Test No. 138, "Self-Determinant – A", "Self-Determinant – B", "You and your career", questionnaire "Orientation";
- for research of thinking processes – Intelligence Structure *Test* by R. Amthauer, Raven Test – 60, Raven Test – 20, methodology test "Seven Types of an Intellect", coding, Landolt Ring Test;
- for personality's research – Personality Structure Test by R. Kettle (16 PF), H. Aizenk's Test – 101, Hand Test, KOS Test, methodology "Your Action Style", descriptions of personality types, determination of professional trends, characterization of professional trends, factors for job selection, personality types;

- for motivation's research – survey "Job Seeking Strategy", research of motivation (for young people), questionnaire for motivation's research;
- information about the client – psychological assessment of training ability/ assessment of professional suitability;
- informative materials, supplementary aids for career's research – "Create your Career by Yourself", "Education Possibilities with Basic Education", "Education Possibilities with Secondary Education", "Training Courses", "Career Planner", "Methodological Suggestions", "Profession Descriptions' Catalogue", "Profession Definitions' Catalogue", etc.

The author has to agree with J. McLeod that nowadays the main task of a counsellor is to develop his/ her own individual counselling approach by combining different methods, but it requires long searches (McLeod, 2005). It is a hard task, because it is difficult to be competent in this classification of methods and methodologies; a person has to seek for his/ her individual approach, therefore it was researched, what kind of career counselling methods are used by career counsellors, who are working in Latvia.

The results of the research were summarized according to targeting criteria, reflecting the methods, which are used by career counsellors in their work very often and frequently. In career planning most frequently are used Clarification of Values, Curriculum Vitae (CV), Holland Code Test, Experience Assessment, Problem Solving, Decision Making and Interests' Tests (Figure 1).

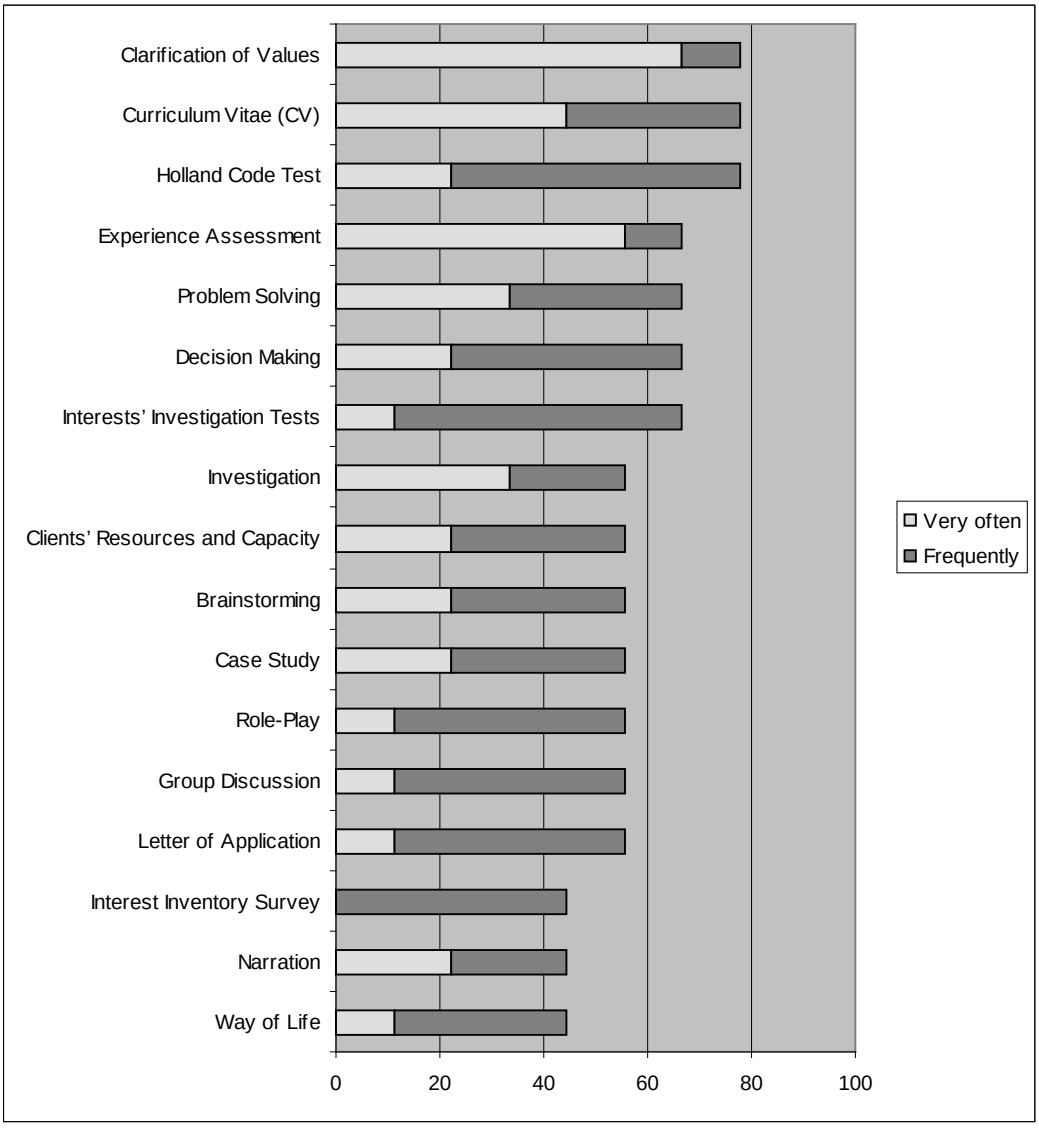

Figure 1. Most frequently used methods in career planning (*%)*.

For assessment of occupational suitability the most frequently used methods are Holland Code Test, Clarification of Values, Curriculum Vitae (CV), Interests' Tests and Experience Assessment. It is interesting that for career planning and assessment of occupational suitability one of the most frequently used methods is Curriculum Vitae (CV) (Figure 2).

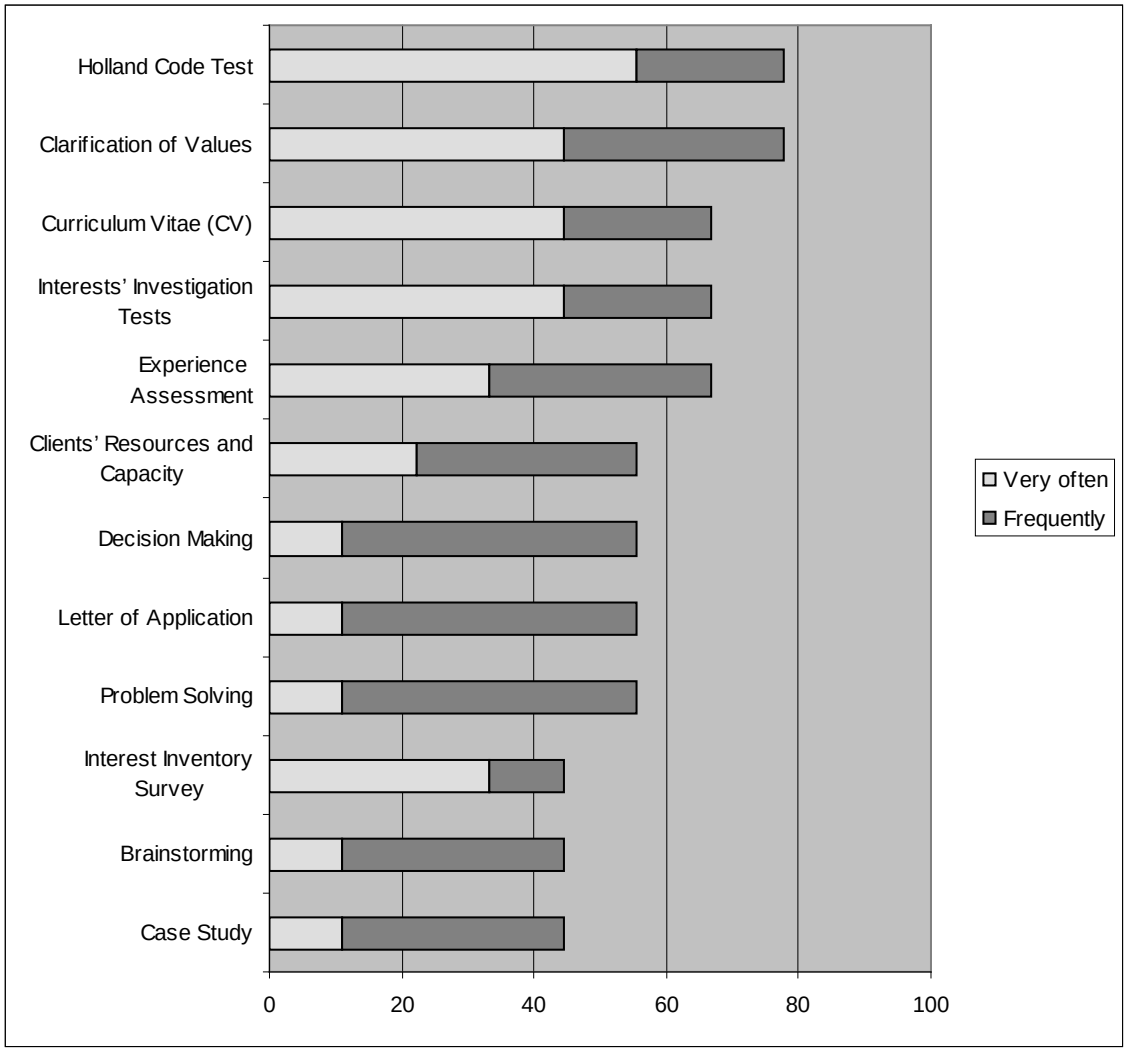

Figure 2. Most frequently used methods for assessment of occupational suitability *(%).*

For acquiring of job seeking and retention skills most *frequently* used methods are Case Study, Letter of Application, Curriculum Vitae (CV), Experience Assessment, Investigation, Self-Characterization and Role-Play (Figure 3).

By analysing the methods, which are used in career counselling, it is visible that there are methods, which are used by career counsellors both for career planning, and for assessment of occupational suitability, as well as for acquiring of job seeking and retention skills, e.g., Holland Code Test, Clarification of Values, Experience Assessment and Curriculum Vitae (CV). It demonstrates that in practice there is no strict margin between usages of methods; the most important thing is knowledge of these methods. Many of methods were mentioned by career counsellors as unknown (in question "*Were there any unknown method terms?*"). As unknown were mentioned such methods as Magic Wand, Mock Interview, Computer-Based Self-Assessment, Personal Project, Metaphor, Card Sorting Method, Life-Space Mapping, SWOT Analysis and Autobiography

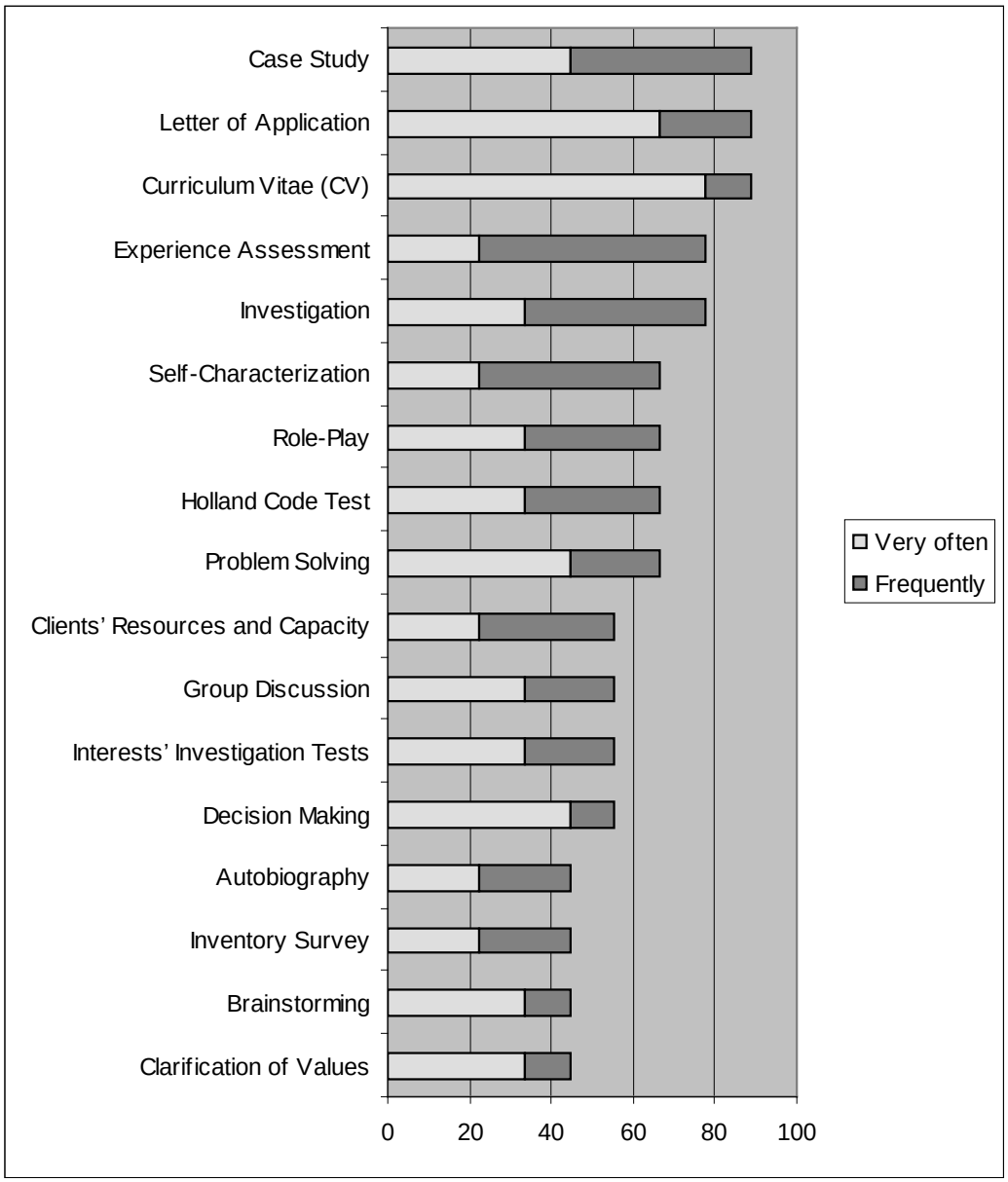

Figure 3. Most frequently used methods for acquiring job seeking and retention skills *(%)*.

The results of the research show that career counsellors in Latvia do not know or do not use many career counselling methods, which are reflected in career theories. It stimulates to continue this research and analyse the reasons.

Conclusions

Taking into account the results of the research and literature analysis, it can be concluded that:

- There is no united classification of career counselling methods. Methods, which are used in career counselling, are classified by clients' needs, purposes and finances, which help the clients to perform counselling activities, process stages, phases of counselling sessions, types or forms of counselling approaches, as well as tools' standardization degree;
- The most frequently used methods in career planning are: Clarification of Values, Card Sorting Method, SWOT Analysis, Interest Inventory Survey, Case Study, Personal Project, Decision Making, Visualisation, Life-Space Mapping, Future Visions, Experience Assessment, Tree of Life, Way of Life and Incomplete Sentences;

- The most frequently used methods for assessment of occupational suitability are: Holland Code Test, Interests' Tests, Clarification of Values, Computer-based Self-Assessment, Life-Space Mapping, Experience Assessment, Clients' Resources and Capacity, Visualisation, Card Sorting Method and Problem Solving;
- The most frequently used methods for acquiring job seeking and retention skills are: Curriculum Vitae (CV), Letter of Application, Card Sorting Method, Interests' Research, Self-Characterization, Case Study, Decision Making, Experience Assessment, Autobiography, Future Visions, Role-Playing Game, Group Discussion, Mock Interview, Brainstorming, Visualisation and Problem Solving;
- One part of career counsellors were not acquainted with such methods (or method terms) as Magic Wand, Mock Interview, Computer-Based Self-Assessment, Talking Circle, Personal Project, Metaphor, Card Sorting Method, Way of Life, as well as Clients' Resources and Capacity;
- By analysing the methods, which are used in career counselling, it can be concluded that there is a difference between career counselling methods, which were used in practice in Latvia in 2011/ 2012, and those methods, which are reflected in career theories.

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THE INFLUENCE OF TEACHER OF PRACTICAL TEACHING UPON DEVELOPMENT OF POSITIVE ATTITUDE TOWARDS WORK

Emil Kříž, Ph.D, Ing.
Institute of Education and Communication, Czech University of Life Sciences, Czech Republic
kriz@ivp.czu.cz

Abstract: The author deals with issue of practical teaching at secondary vocational school. It is used experience of teachers of practical training work and assistant manager for practical teaching at secondary vocational school. The assumption was the subject: Didactics of practical teaching that is taught at Institute of Education and Communication of Czech University of Life Sciences Prague (IVP). One of the themes of this subject is The Personality of teacher of practical training and his influence upon students. The author derives from pedagogical training of students of IEC at Secondary vocational school in Prague – Radotín, from knowledge of conditions, teachers and students of this school. The questionnaire was drawn up with the cooperation of the teacher of practical training. The teacher of practical training has realized inquiry whose results are presented in this article.

Keywords: didactics of practical teaching, teacher of practical training, positive attitude to work.

Introduction

It is focused on issue of practical teaching at secondary technical school and secondary vocational school during the teaching of Didactics of practical teaching and practical experiences of students of IVP. The author keeps in touch with directors of these schools and many teachers of practical teaching. The influence of teacher of practical teaching upon development of positive attitude towards work is very frequent topic during teaching and practical experiences of students of IVP. Some students of IVP prepare their bachelor thesis and final thesis that deal with this topic.

The author analyse the results of inquiry at Secondary vocational school in Prague – Radotín in this article. The Secondary vocational school in Prague – Radotín is one of prominent training school of IVP. The author coordinates and manages the practical experience of students at secondary vocational school and knows the conditions of teaching of practical training.

Methodology

The inquiry is the main method that was used in this research. The questions were focused on choice of branch of study, personality of teacher and his influence upon students and their future occupation. The method of the managed interview specifies answers in questionnaire. Suitable method was watching students of practical training which helped to evaluate research hypothesis that teacher of practical training has essential influence on students' positive attitude towards work.

The role of teacher of practical training and his influence upon students

The role of teacher of practical training and his influence upon development of positive or negative relation of students to work depends on these attributes.

The personality of the teacher - every human represents the personality (with positives or negatives). The students should respect their teacher like real personality with positive attributes. These features of personality (ability, temperament, character, motivation, needs, interests, aspirations, attitude, knowledge, skills, habits) should be characteristic for teacher of practical teaching. The teacher of practical teaching is one of the main factors of upbringing and education of students of secondary technical schools and secondary vocational schools.

The function of the teacher - the teacher of practical training should discharge two basic functions in educational process. The teacher should be a good specialist in the branch of education. He should have multi-annual practical experience in operational conditions of state and private enterprises and organizations. He should educate and bring up too.

The forming of skills - the teacher of practical teaching has finished secondary education or higher education. It does not include only his vocational knowledge which was achieved during the study. He would have practical skills too. It is the basic assumption for forming and knowledge acquisition of skills by students.

The authority of the teacher - the assumption is not only expertise and skills but how teacher explains the issues and how teacher teach practical skills which he has to know perfectly.

The qualification of the teacher - in the present, there is increased demands on full qualification of the teacher of practical training. Many teachers complete and extend their level of qualification often during their teacher`s occupation. It is necessary education at university, knowledge of branch, pedagogical qualification and positive attitude towards work with young people for full qualification.

Teacher`s planning, managing and decision-making activity - the teacher works up the thematic plan for the subject and written plan for practical lesson. The managing activity of the teacher issues from planning activity. It is the operative-managing and checking activity. The decision-making activity is an important part of managing activity of the teacher of practical teaching.

Student`s assessment - the teacher of practical teaching has to have perfect survey about students. He has to be informed about their abilities, state of health and health restrictions. He should know the situation in student`s family (family relations, conditions for study, material securing).

Extracurricular activity - contains vocational activity, enlightenment, experiments, research, implementation of new technological method to practice, publication activity, hobby etc. There are many possibilities what to do.

The increasing of qualification - it is the moral obligate of every teacher. It represents upbringing and education during life time. The teacher gets new information during individual study. He participate various training, vocational courses, conferences of teachers and specialists of his branch.

The results of the inquiry

Total 55 respondents took part in the inquiry at Secondary vocational school in Prague – Radotín. All respondents filled the questionnaire in and after that they returned them. The teacher of practical training addressed students from two classes (2nd and 3rd grade) of branch of study: car mechanic. The students chose from three alternatives. The results of this inquiry were transformed into tables 1,2.

Table 1

The branch of study – future occupation

Question	Evaluated category	Yes	No	Other	Total
1	The students` imagine about future occupation	74,5 %	14,5 %	11,0 %	100,0 %
2	The attitude of students towards work	78,0 %	14,7 %	7,3 %	100,0 %
3	The priority of practical training	72,7 %	17,4 %	9,9%	100,0 %
4	The temporary employment of students	54,5 %	45,5 %	0 %	100,0 %
5	The job in branch after graduate	61,8%	20,0 %	18,2 %	100,0 %
6	The re-election of the branch	88,0 %	12,0 %	0 %	100,0 %

It is possible to summarize and analyse following knowledge. The particular idea about future occupation is an important moment of students` positive attitude towards work. The students of 2nd and 3rd grade have particular concrete idea (74,5 %). Relatively few students have not obvious idea (14,5 %). The rest of students have no idea (11 %).

The students have mostly positive attitude towards work and they take pleasure in work (78 %). Few students (14,7 %) answered that they take pleasure in some practical activities. Only 7,3 % students perceive work as obligate.

The students (72,7 %) prefer practical training to vocational subjects. It is typical for students of branch of study with apprenticeship certificate. The practical training is realized mostly in the school workshop. Practical training is organized in contractual organisations in order to discover working operational conditions.

More than half of students (54,5 %) have temporary employment for financial reward. Financial reward is very motivated for most of students of secondary technical schools. The students want apply for a job in their branch of study.

More than half of students (61,7 %) want work in their branch, the minor group of students wants continue to study and the same number of students wants work in the other branch (20 %). They were not quite clear on choice of branch of future occupation or they were influenced by other person.

It is very positive facts that 88 % students would choose the same branch if they had to decide again. This reality represents good reputation of secondary vocational school, excellent organization of teaching and quality of teachers.

Table 2

The personality of the teacher

Question	The evaluated category	Yes	No	Other	Total
7	The expertise of the teacher	81,8 %	0 %	18,2 %	100,0 %
8	The teacher`s authority	87,3 %	12,7 %	0 %	100,0 %
9	The motivation of the students	83,6 %	16,4 %	0 %	100,0 %
10	The preparation of students for future occupation	69,1 %	0 %	30,9	100,0 %
11	Confide problems to the teacher	9,1 %	70,9 %	20,0 %	100,0 %

This opinion demonstrates answers of students related to next question. Many students (81,8 %) answered that their teacher of practical training is very good teacher and specialist in branch. The expertise of teacher is a basic assumption of his authority.

The natural authority of teacher is very important (that is determined by his manual skill). This opinion have 87,3 % students. Only 12,7 % students think that manual skill of teacher is not important. Each teacher of practical training has to know that manual skill is necessity for him.

The teacher of practical training positively motivate the majority students (83,6 %) to good work performance during knowledge acquisition. The other students (16,4 %) answered that their work is not influenced by motivation.

Many students are persuaded that their teacher of practical training prepares them for future occupation. None of them thinks that their teacher of practical training doesn`t prepare them for future occupation.

The students responded surprisingly to question related to confide to teacher of practical training with their problems. It is not clear if they understood this question, because 70,9 % students answered negatively. Only 9,1 % students answered positively. Other students (20 %) are not sure. Most of students respect their teacher, but they do not confide him absolutely (in accordance with inquiry).

Discussion

The work has irrecoverable importance for human society. It is impossible live without the work in society which is civilized. The work forms and facilitates a self-realization of the human. The young people preparing for working occupation have positive attitude to work. It represents work with visible and objective results. Therefore work is able to bring satisfaction to human (Konečný, 1999).

It is desirable to develop positive attitude of young people towards work. The attitude manifests as moral obligate during the work performance. Students have to have sense of responsibility, work activity, creativity and initiative. The work is performed with positive attitude and pleasure (Farková, 2006).

The work of students has to be assessed – how they acquire the skills and how they use them in working process. The assessment is expression of positives of work performance and clears up the substance of failure, instruction for overcome imperfections. Positive motivation and approbation should not be missed (Helus, 2006).

The students look for their pattern in personality of teacher of practical training. The teacher has to have pedagogical tact, be honourable, just, affable, patient, sincere, consistent in his treatment with students. It ranks among his high-minded and moral attributes (Slavík, Miller, 2012).

The teachers of practical teaching have to develop their personality. They pass various educational degree for improving their qualification, they use modern teaching methods and means for ensuring of teaching (Miklošíková, 2009).

The teacher of practical training has irrecoverable role in educational process. He should be a specialist and educational worker. The teacher`s authority depends on vocational and pedagogical qualification, vocational skills and especially upon ability to teach practical skills (Kříž, 2012).

Conclusions

The inquiry has found out opinions and attitudes of students of branch of study with apprenticeship certificate Car mechanic. It is the branch of study which has no doubt great prestige in Czech Republic.

The inquiry discovered that students of secondary vocational school (the majority) have concrete idea about their future occupation and that they would choose this branch of study again. They have positive attitude towards work and they prefer practical training to theoretical vocational subjects. They want to apply for a job especially in their branch but some students want continue to study.

The hypothesis – the teacher of practical training has considerable influence upon development of students` positive attitude towards work, was confirmed. The teacher represents a natural authority for most of students and respected specialist that is able to motivate them right for the activity and prepare them for future occupation.

The teachers of practical training spend much time with their students and therefore they are able to influence them. The competences and positive character attributes are the assumption of right influence upon students. The personal example is a very important factor of this process.

The preparation of the students for future occupation forms professional and human aspects of their personality. Every young human (every student of secondary technical school) develops oneself all the time. It is the characteristic of this group. The teacher of practical training has to take teenagers into consideration. The teacher of practical training has to have considerate and adequate approach to the age and abilities of students. If teacher of practical training is successful, he will be able to influence opinions and attitudes of students.

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PERCEPTIONS OF INFLUENCES ON CAREER DEVELOPMENT AMONG LONG-TERM UNEMPLOYED SOCIAL BENEFITS RECEIVERS

Jānis Pāvulēns[1] Mg.paed.; **Anna Bičkovska**[2]
Institute of Education and Home Economics, Latvia University of Agriculture, Latvia[1,2]
pavulens@inbox.lv[1]; annabickovska@inbox.lv[2]

Abstract: The number of the long-term unemployed social benefit receivers is increasing in Latvia. It adds additional burden to municipal budgets and does not allow society to have full usage of human capital of those people, as well as it causes social and psychological problems to unemployed themselves. The aim of the research is to find out the way how the long-term unemployed social benefit receivers perceive their career development influences to create a suitable career guidance model for a target group in future. On the basis of the Career Systems Theory Framework (STF), using a questionnaire developed by the authors, 46 long-term unemployed social benefit receivers registered in Riga Social Service were asked to take part in the survey. The respondents described their career management competencies as average. Statistically significant correlations between the level of education and importance of goal-directed career management were found; those of respondents with a higher level of education assessed their career success higher and showed greater necessity for further career guidance. Negative assessment of the environmental-societal system elements dominated in the career influences assessment of the respondents, the most important positive career influences according to respondents were elements of the individual system – ability to learn, as well as one's own values, interests and skills.

Keywords: career influences, career management, long-term unemployed social benefit receivers.

Introduction

Topicality of the research is proved by the increasing number of the long-term unemployed social benefit receivers in Latvia during the recent years. For example, as the number of the population of Riga decreased by 4.3 thousand (from 703.5 thousand in 2010 to 699.2 thousand in the end of 2011), the number of the municipal social benefit receivers increased by 10.6 thousand (accordingly from 71.9 to 81.5 thousand). In the beginning of 2012, 12% of the population of Riga received social benefits paid by the municipality. Due to increasing number of benefit receivers, the social benefit funds were increased by 33%. Riga Social Department found out that there were more than 10 thousand unemployed in the city who did not receive any benefits and were potential receivers of social service benefits. It was also found that the average period of receiving benefits had been increased. There is a paradoxical tendency – the level of unemployment decreases, however, the level of the long-term unemployed social benefit receivers increases at the same time (Moors, 2012).

The long-term unemployed social benefit receivers are able-bodied persons which have received benefits more than 12 times within the last three years and were jobless at least 9 months (Pētījums par..., 2007), and have been receiving social service support at least for the last six months.

The research carried out by the State Employment Agency (SEA) confirms that the long-term unemployed persons (individuals having a status of an unemployed person for more than a year) usually justify their desire to remain in the register of the SEA with a necessity to receive assistance in their efforts to find a job and social assistance (Reģionālie pētījumi..., 2006). Researchers state that *poor motivation is the reason for long-term unemployment in many cases* (Reģionālie pētījumi..., 2006, 71), a large part of the long-term unemployed social benefit receivers tends to avoid active collaboration activities to find a job, less than 40% of the social benefit receivers with employment problems have found a job within year (Moors, 2012).

A. Kolesnikova points out that the long-term unemployed social benefit receivers have common psychological features – they have poor abilities to interact with the surrounding social and economic environment, and their abilities to assess professional compliance of their skills with the labour market requirements are not developed, they have insufficient knowledge regarding occupations, employers'

requirements, as well as an inadequate level of self-confidence (Колесникова, 2003). Thus, it shows insufficiently developed career guidance competencies and non-commitment to assume responsibility for building one's own career.

Nowadays individuals are expected to manage their own careers (McMahon, Tatham, 2008). Career management can be seen as a process of continuously balancing and integrating internal and external aspects of career. Career management competence involves externally and internally oriented self-management capabilities. The former required to *identify and exploit career opportunities, to see opportunities on the horizon and reinvent one's self accordingly, and to build effective professional networks*, the latest – to maintain *a realistic positive sense of personal priorities and values, including having a sense of one's career orientation* (Bridgstock, 2008a).

Individuals are expected to build and maintain a positive self-concept, to interact positively and effectively with others, to change and grow through the course of life, to participate in lifelong learning supportive of their career goals, to locate and effectively use career information, to develop understanding about the relationships between work, society and the economy, as well as to be able to secure/create and maintain work, make career-related decisions, maintain balance among their life roles, develop understanding about the changing nature of life and its roles. They have to be able to understand, engage in and effectively manage their own career-building process. Individual career development is a unique and creative process, influenced by his or her personal characteristics and affected by his or her family, community and cultural values, as well as by geographic, economic and political circumstances (MCEECDYA, 2010).

It can be stated that in order to develop a career development support programme for the long-term unemployed social benefit receivers, it is necessary to research perception of the target group regarding their career development and career guidance.

The aim of the article is to publish the results of the theoretical and empirical research carried out by the authors of the article on perception of career development influences among the long-term unemployed social benefit receivers.

Methodology

The theoretical part of the research consists of the study and theoretical analysis of the scientific and methodological literature on career development and career management.

To assess perception of career development influences among the long-term unemployed social benefit receivers, as well as of their perception of career management competences, career success, and importance of goal-directed career management, the empirical part of the research was provided.

Research questions:

- How do the long-term unemployed social benefit receivers assess their career?
- Which career development influences do the long-term unemployed social benefits receivers consider as the most significant and how do they assess their influences?
- How do the long-term unemployed social benefits receivers assess their career management competencies?
- How do the long-term unemployed social benefit receivers assess importance of goal-directed career management?

The current empirical research was carried out in Riga Social Service. There were 46 long-term unemployed social benefit receivers participating in the research. The participants of the research were as follows: 37 female (80.4%) and 9 male (19.6%) between the age of 21 to 59 (Mean (M) = 36.5, Standard Deviation (SD) = 11.2).

A survey developed by the authors consists of the Career Development Influence Self-Assessment Scale (29 items), Career Management Competence Self-Assessment Scale (11 items).

The Career Development Influences Scale based on the Systems Theory Framework was adapted from earlier studies (Bridgstock, 2008b). There are 29 items included in the adapted version (Cronbach's Alpha (α) is 0.91; original version's α=0.93): 17 individual influences (α=0.90), 6 social/

contextual influences (α=0.79) and 6 societal/environmental influences (α=0.78). Degree of each influence on career development is rated on a bipolar seven-point Likert type scale, ranging from "strongly negative" to "strongly positive".

The Career Management Competence Self-Assessment Scale (α=0.87) is based on the 11 competencies outlined in the Australian Blueprint for Career Development (MCEECDYA, 2010). Clarifying descriptors were provided for each competence and each item.

Participants were asked to define a term *career* and, according to their definition, to rate their career success on a 0 – 5 Likert scale (ranging from "not successful at all" to "very successful") and to evaluate importance of goal-directed career management in their career on a 0 – 5 Likert scale (ranging from "not important at all" to "very important").

The participants were also asked to specify their gender, age, length of unemployment and the level of education, as well as to express their opinion regarding the necessity of further career guidance.

Results and Discussion

While carrying out the study and theoretical analysis of the scientific and methodological literature on career development and career management we found out that according to traditional career theories a career is defined as *a succession of related jobs, arranged in a hierarchy of prestige, through which persons move in an ordered, predictable sequence* (Wilensky, 1960), however, the modern career theories emphasizing individual nature of each person's career, regard it as *the evolving sequence of a person's work experiences over time* (Arthur, Hall, 1989,9) or the sequence of employment-related positions, roles, activities and experiences encountered by a person (Arnold, Silvester, 2005, 521). Career development is a lifelong process of managing learning, work, and transitions which desirable result is achievement of individually significant, self-defined aims approaching desirable life style more and more (Hiebert, 2006).

W. Patton (2008) has found two key themes in the current career theory literature: the on-going drive for convergence of career theories and the influence of constructivism. Constructivist career theorists recognize individuals as *active agents in the production of their careers* (McMahon, Watson, 2008, 280) and stress the importance of regarding the individual in his or her spatial and temporal context (Patton, 2008). Unlike traditional career perception, modern career perception emphasizes individual responsibility for development of one's own career, highlights the role of each person regarding development and management of his or her own career, and sees it as the most significant prerequisite of objective and subjective career success (King, 2004; Arthur, Khapova, 2005; Ng, Eby, 2005).

U. Bronfenbrenner, the author of the bioecological model of development, stated that *development takes place through processes of progressively more complex, reciprocal interaction between an active, evolving bio-psychological human organism and the persons, objects, and symbols in its immediate external environment. To be effective, the interaction must occur on a fairly regular basis over extended periods of time* (Bronfenbrenner, Evans, 2000, 117). Proximal processes (enduring forms of interaction in the immediate environment) serve as engines of development and are described as a *joint function of the characteristics of the developing person, the environmental context – both immediate and more remote – in which the processes taking place, and the social continuities and changes occurring over time through the life course, and the historical period during which the person has lived; and, of course, the nature of the developmental outcomes under consideration* (Bronfenbrenner, Evans, 2000, 118).

D. Super maintained the idea of personal and situational determinants of career development. Personal determinants consist of the individual's *genetic constitution, modified by his or her experiences (the environment and social determinants) in the womb, the home, and the community*, social determinants are *the geographic, historic, social, and economic conditions in which the individual functions from infancy through adulthood and old age* (Super, 1980, 294). Situational determinants consist of the social structure and economic conditions, historical change and socioeconomic organizations as remote situational determinants and employment, school, community, and family as immediate situational determinants. Personal determinants include biological heritage as remote determinant and

intelligence, specific aptitudes, academic achievement, needs, values, interests, attitudes, self-awareness, and situational awareness as immediate determinants (Super, 1980).

The Systems Theory Framework (STF) considers individuals as inseparable from their contexts, which are defined as systems of influence (McMahon, Watson, 2012). The STF locates the individual within myriad of social influences and describes *influences in terms of content and process and positions those influences at (and across) the levels of the individual system and the contextual system, which is conceptualised as the social system and the environmental-societal system* (Patton, 2008, 145).

The individual system of influences includes age, gender, values, beliefs, sexual orientation, ethnicity, health, physical attributes, disability, and ability, interests, skills, personality, aptitudes, self-concept and world-of-work knowledge. *The social system* includes the proximal social system which comprises family, peers, community groups, education institutions, media, and workplace, *the environmental-societal* system of influences consists of political decisions, historical trends, employment market, geographic location, socioeconomic status, and globalisation. The environmental-societal influences distal to the individual are crucial to the social construction of context (Patton, 2008).

According to J. Holland's suggestions, everyone has a Personal Career Theory (PCT), the individualized conceptualization of how careers and work unfold and operate, resulting from their unique life experience (Reardon, Lenz, 1999; Lee, Johnston, 2001), *the collection of beliefs, ideas, assumptions, and knowledge that guides individuals as they choose occupations or fields of study, explains why they persist in them, and is used by people as they go about making careers decisions* (Reardon, Lenz, 1999, 103). Everyone has assumptions of what will contribute to successful, satisfying work and non-work activities, and how to achieve career and life goals (Lee, Johnston, 2001).

PCT's can range from weak, primitive, incomplete and invalid to strong, valid, complex and comprehensive, it is functional, if the strategies used by individuals to pursue their career development are effective (Reardon, Lenz, 1999; Lee, Johnston, 2001). Understanding of client's perspective (or PCT functionality) is crucial to decide what kinds of interventions might be useful based upon how well client's PCT is serving them, because interventions might range from simply providing additional information and support, to helping restructure client's individual PCT. Individuals with functional PCT may simply *need suggestions as to how to access specific occupational information such as occupational information, job leads on the internet, resume preparation, and/or emotional support,* clients with problematic PCT's (e.g., problems in decision-making, work adjustment, or career planning) need to help *addressing basic assumptions and reworking their PCTs* (Lee, Johnston, 2001, 180).

D. Brown suggests that *the subjective frame of reference of human beings is the only legitimate source of knowledge. Events occur outside human beings. As individuals understand their environments and participate in these events, they define themselves and their environments* (Brown, 2002, 14). *Knowledge is constructed within the individual in relation to their experience, and cannot be taught .., theory cannot be applied to individuals; they construct their own personal theory* (Patton, McMahon, 2006, 162).

Thus, understanding of career influences is crucial for individual's proactive engagement in and effective management of his or her own career-building process. Authors of STF suggest career counsellors to discuss each career development influence from the STF *with reference to the client's understanding of its presence within his or her career*, as well as to provide *a discussion of how the client understands the interaction between influences in his or her life* (McIlveen, Patton, 2007, 232).

In the empirical part of the research we found out that distribution of career self-assessment of the long-term unemployed social benefit receivers does not statistically significantly differ from the normal distribution (Kolmogorov – Smirnov $Z=1.252$, $p=0.09$). Central tendency indicators of the career self-assessment ($M=2.11$, $SD=1.32$) show that the respondents choose response options that were closer to the negative assessment to assess their career – 29 respondents (63%) choose the assessment that was less than the average one, 7 respondents (15% of respondents, 5 females and 2

males) were of the opinion that their careers were unsuccessful, 2 respondents used the maximal mark ("5") to describe their career success (4% of respondents, 1 female and 1 male). Differences of career self-assessment between the gender subgroups were not statistically significant (Mann-Whitney U=161.0; p=0.88), statistically significant moderate correlation was found between the respondents' level of education and their assessment of career (Spearman's rho (r_s) is 0.33, p=0.02). It means that those respondents with a higher level of education assess their career success higher.

As for assessment of the necessity of further career guidance, there are statistically significant (χ^2=6.87; p=0.03) differences between male and female assessments. More than a half of males (5 respondents) and approximately one fourth of females (9 respondents) state that they do not know whether they need further career guidance, 21 female respondents (57% of the total amount of female respondents) and only one person of male respondents acknowledge the necessity of guidance, 7 female respondents and 3 male respondents give a negative response to the question on the necessity of further career guidance. In total 14 respondents chose the option "don't know", 10 respondents chose the option "no", and 22 respondents chose the option "yes". It has to be pointed out that the assessment regarding the necessity to have career development assistance is not related to the career assessment. Comparing the career assessment in separate ("don't know", "no", "yes") groups, good assessment congruence was found (χ^2=0.53; p=0.77). The necessity of further career counselling is related to respondents' level of education. Although differences are not statistically significant (χ^2=8.74; p=0.13), it can be seen that as the level of education increases, the necessity for further career building assistance also increases.

Comparing assessments of the long-term unemployed social benefit receivers regarding importance of goal-directed career management, it was found that there were statistically significant differences among the gender subgroups (Mann-Whitney U=750.5,p<0.01). Mean value of the female group (M=4.08, SD=0.92) is higher than that of the male group (M=2.78, SD=1.40). Statistically significant moderate correlation between assessment of respondents' level of education and importance of goal-directed career management (r_s=0.37, p=0.01) was found. In general it means that those respondents with a higher level of education assess significance of conscious, purposeful career management higher.

Table 3

Central Tendency Indicators of Career Management Competencies

Competency	Mean	Standard Deviation
Build and maintain a positive self-concept	3.22	1.13
Interact positively and effectively with others	3.61	1.06
Change and grow throughout life	3.43	1.00
Participate in lifelong learning supportive of career goals	3.54	1.22
Locate and effectively use career information	3.52	1.09
Understand the relationship between work, society and the economy	3.00	1.44
Secure/create and maintain work	2.67	1.35
Make career-enhancing decisions	3.07	1.02
Maintain balanced life and work roles	3.43	1.24
Understand the changing nature of life and work roles	3.26	1.31
Understand, engage in and manage the career-building process	3.26	1.37

Respondents describe their career management competencies as average (Table 1), the ability to secure/create and maintain work has the lowest assessment, the ability to interact positively and effectively with others has the highest assessment. Distribution differences of career management

competencies regarding gender subgroups are not statistically significant (all calculated Mann-Whitney U>112.5; p>0.13); comparing self-assessment of career management competencies within the educational subgroups using the Kruskal-Vallis Test, statistically significant differences are not found (all calculated χ^2<7.49; p>0.05).

Individually assessing each career management competency within a context, statistically significant moderate correlation was found between the level of respondents' education and their readiness to *participate in lifelong learning supportive of career goals* (r_s=0.40, p< 0.01). It shows that those respondents with a higher level of education assess their readiness to participate in lifelong learning supportive of career goals higher.

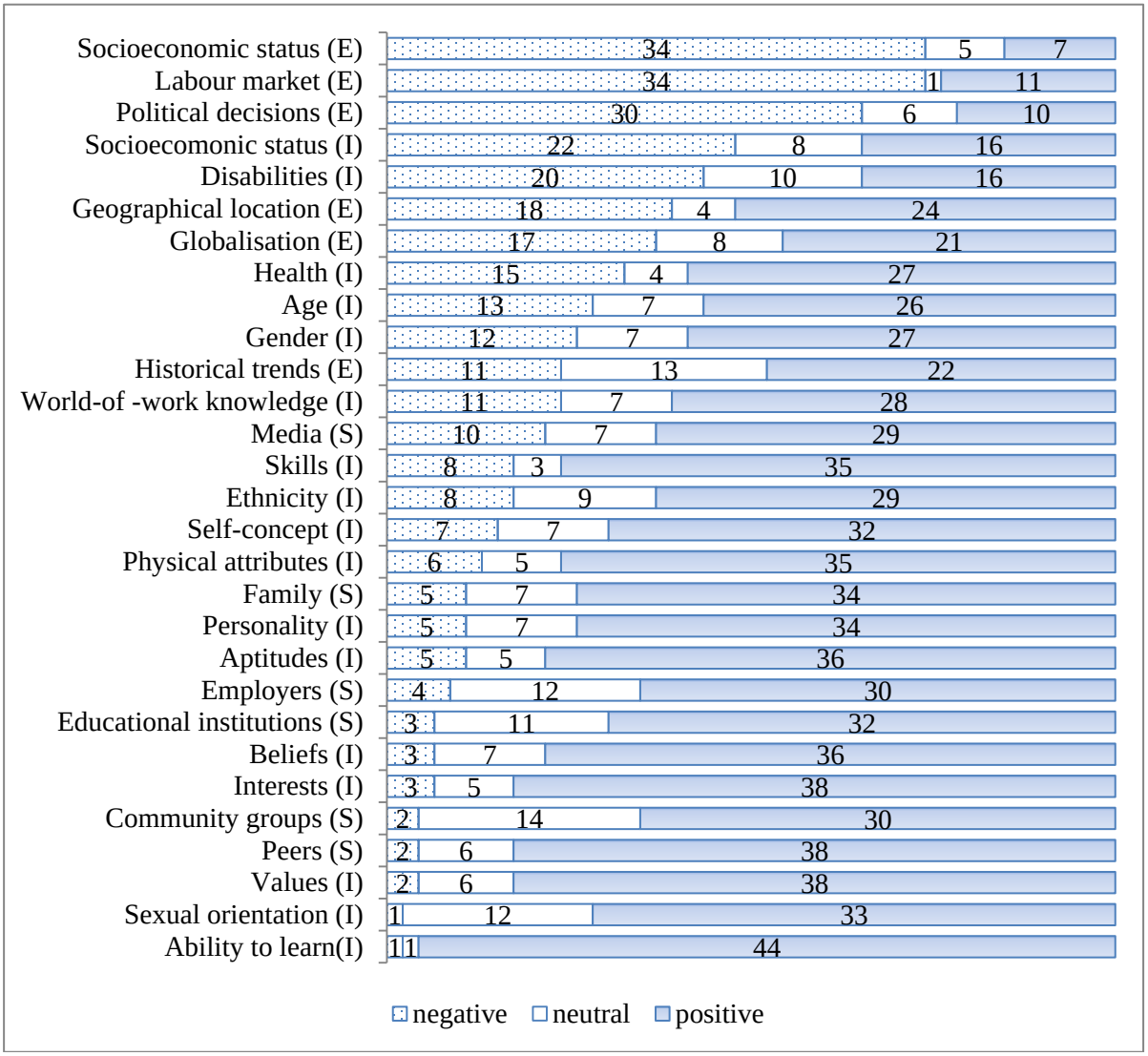

Figure 1. Distribution of career influences self-assessment of the long-term unemployed social benefit receivers (number of respondents, sample size N=46) (I – individual system of influences, S – social system of influences, E – environmental-societal system of influences).

The long-term unemployed social benefit receivers are of the opinion that the most significant factors negatively influencing career development during the survey are as follows: socioeconomic and political environment, labour market, as well as a social and economic status of the family, geographical location and globalization; positive influence, in its turn, is ensured by the ability to learn, values and interests, as well as by peer support (Fig.1).

Distribution differences of career influences regarding gender subgroups of the long-term social benefits receivers are not statistically significant (all calculated Mann-Whitney U>103.5; p>0.08);

comparing self-assessment of influences using the Kruskal-Vallis Test, statistically significant differences among the educational subgroups are not found (all calculated χ^2<5.59; p>0.13).

The older respondents are, the more negative is their assessment of influences of their gender (r_s= –0.55, p <0.01), health (r_s= –0.39, p <0.01), and especially – the age (r_s= –0.75, p <0.01) to career development, also the number of negative assessment regarding globalization influence increases (r_s= –0.35, p=0.02). Those respondents who are unemployed for a longer period of time assess political environment as a career influencing issue more negatively (r_s= –0.43, p<0.01).

Conclusions

When developing support programmes for the long-term unemployed social benefit receivers, it is recommended to consider the following conclusions of the research:

- Self-assessment of career (as defined by respondents themselves) complies with the normal distribution, a major part of the respondents considers their career as at least satisfactory; it means that it is necessary to research career perception of the long-term unemployed social benefit receivers further.
- The major part of the long-term unemployed social benefit receivers sees the elements of distal, *environmental-societal* system of influences as the most negative, cumbersome factors which, according to the results of the theoretical study, only partially influence development of individual career; however, they are significant in order to develop the context of career development. The major part of the respondents sees their ability to learn, their values and interests, as well as the peer support as the most significant positive career influences.
- The long-term unemployed social benefit receivers do not assess significance of the immediate social environment as career influence sufficiently, a lot of respondents point to the community groups and educational institutions as to neutral influences, which, together with the *environmental-societal* system which has been acknowledged as negative environment for career development, create threats of social outlawing.
- The respondents assess their career management competencies as average, and the abilities to interact positively and effectively with others (M=3.61, SD=1.06) and to participate in lifelong learning supportive of career goals (M=3.54, SD=1.22) are assessed higher, however, readiness to secure/create and maintain work is assessed lower (M=2.67, SD=1.35).
- The long-term unemployed social benefit receivers with a higher level of education express greater readiness to assume responsibility for development and management of their career (r_s=0.37, p=0.01), likewise they show greater readiness to participate in lifelong education (r_s=0.40, p<0.01), as well as to accept help rendered by career support professionals.
- The female long-term unemployed social benefit receivers express greater readiness to assume responsibility for their career management than male, comparing assessments regarding importance of goal-directed career management, it was found that mean value of the female group (M=4.08; SD=0.92) was higher than that of the male group (M=2.78; SD=1.40), differences among the gender subgroups is statistically significant.

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FACTORS DETERMINING SUCCESSFUL WOMEN CAREERS

Anita Rācene Mg.ed., Mg.oec.
Latvia University of Agriculture, Institute of Education and Home Economics, Latvia
arz.pluss@inbox.lv

Abstract: The development of a women's career is more complicated than that of a men's career, as several internal and external barriers exist, including family duties, the diversity of roles of life, employment, the surrounding environment, traditions, and stereotypes which both complicate and constraint the choice and growth of a women's career. A career is defined as a sequence of employment-related positions, roles, activities, and experiences which unify a job, a career, and a profession, with the situation of being unemployed being included as well. The paper includes research results on the factors determining successful women's careers. The aim of this research was to investigate the factors determining successful women's careers. To achieve the aim, a questionnaire survey of women was conducted. Women aged from 29 to 58 years participated in the survey. In the survey, the most significant factors affecting the development of women's careers were identified; they were: educational level, psychological climate at the workplace, attitude of managers, distance between the workplace and home, and woman's age. It was found that a women's career is a whole life that includes family, leisure time, and what is done for society and for self-development. The most significant profession choice factors are: parents' opinion, need to fulfil one's potential, interest in a profession, prestige of a profession, gender role factor, orientation towards the system of social values established in the society, need for security and defence, and psychosomatic illnesses. The research results will contribute to an understanding of the factors determining successful women's careers and their role in a career life of women.

Keywords: women's career, job-determining factors, glass ceiling.

Introduction

It is a positive fact that a woman thinks of her career not only as a job, but also regards it as her life. There are five interrelated areas of life to which women dedicate a lot of time, energy, duties, and attention. A key to a successful life for women is their ability to balance all these five areas of life:

- a job (it is important that every individual does a job that provides both moral satisfaction and financial stability to them);
- the family (family life is one of the most important areas of human life, therefore, it is essential that it is structured according to the individual's needs and desires);
- mentality (time and activities that people dedicate to mental growth, self-perfection and development);
- a civil society (a need to be part of the society – time and energy dedicated to other individuals, the environment, and the country);
- leisure time (leisure time and hobbies enable people to fulfil their interests that were not fulfilled at their job) (Karjeras jomas, 2004).

An opinion exists that individuals have a limited choice of profession and employment is based on gender and ethnic and social origin. As regards gender, women seemingly have no limited opportunities to choose and work in a freely chosen profession if this profession is not historically been assumed to be a profession for men or a position that may be taken by an individual of certain stereotype. In relation to a women's career and its development, the term *glass ceiling* is exploited. Johanne Toussaint writes in her works that the glass ceiling means the economic oppression of women (Toussaint, 1993). The economic term *glass ceiling* relates to an unseen barrier that limits opportunities for minorities and women to climb up the career ladder regardless of their qualification and achievements. Initially, the metaphor was applied to barriers, especially women's careers, yet, it was extended very fast to refer to obstacles that prevent women from continuing gaining success in their career. This metaphor is most often mentioned regarding women who are not able to climb up the career ladder at their job. The metaphor *glass ceiling* is an excellent way of how to describe a situation

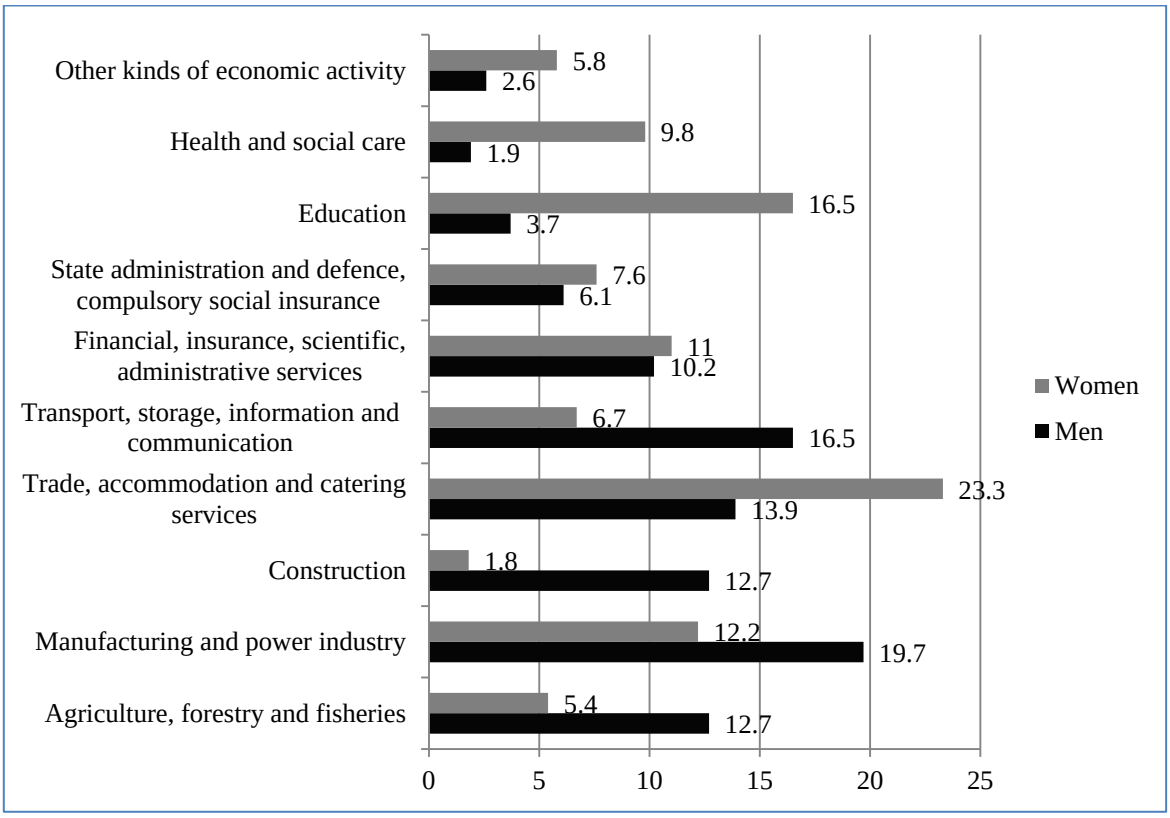
that prevents women from reaching career heights compared with men. Theoretically, nothing hinders building an upward career; a barrier is imposed by stereotypes, therefore, the explanation is that the *ceiling* is made of glass. A woman can clearly see that those who are ahead of her are stronger, but she is not able to achieve the same results; she stops in front of unseen forces not allowing her to climb up higher (Napikoski, 2012).

The *glass ceiling* includes barriers in vertical career growth, unequal wages for the same work, the loss of professionalism owing to long periods of pregnancy and child leave.

David A. Cotter defined four different distinctive features or specific criteria that have to be met to conclude that a *glass ceiling* exists. The *glass ceiling* becomes apparent as an inequality if observing:

- a gender or racial difference that is not explained by other job-relevant characteristics of the employee;
- a gender or racial difference that is more specific at higher levels of an outcome than at lower levels of an outcome;
- a gender or racial inequality in the chances of advancement into higher levels, not merely the proportions of each gender or race currently at those higher levels (Cotter, Hermsen, 2001).

As regards equality between men and women, Article 23 of the Charter of Fundamental Rights of the European Union stipulates that equality between men and women must be ensured in all areas, including employment, work and pay (Eiropas Savienības…, 2007). The situation in the issues of equality between men and women in Latvia is analysed further in the research. Analysing Central Statistical Bureau (CSB) data for 2011 (Figure 1), one can find that there are areas in Latvia in which women are represented more often than men. Three areas in which the number of women is greater than that of men are: trade, accommodation, and catering services, education, as well as health and social care.

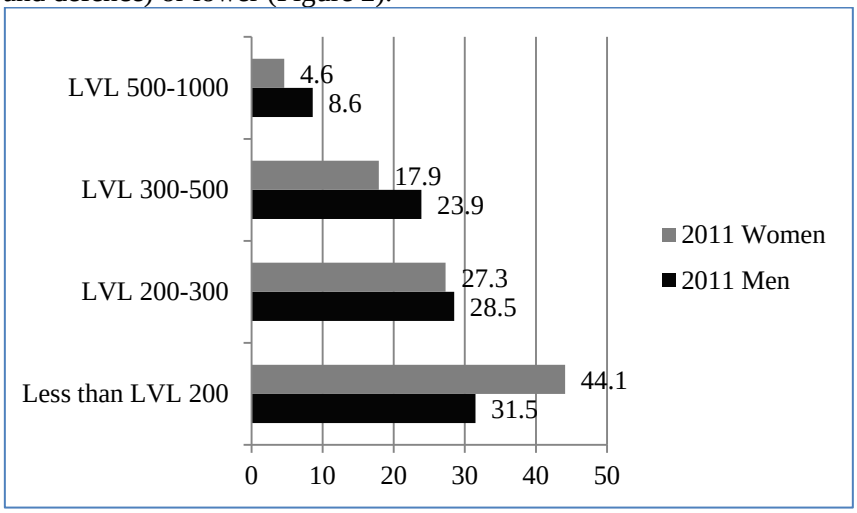


Source: author's construction based on CSB data.

Figure 1. Percentage distribution of employees by kind of economic activity and by gender in Latvia in 2011.

Although women, in general, obtain higher education more often than men, yet, according to CSB data, wages of women are not greater than those of men in none of the areas (kinds of economic

activity). Their wages are either approximately the same (for instance, in construction, state administration and defence) or lower (Figure 2).



Source: author's construction based on CSB data.

Figure 2. Percentage distribution of net monthly wages (after taxes) of employees in their basic work by gender in Latvia in 2011.

The research aim of this paper is to investigate the factors determining successful women's careers.

Methodology

A survey was conducted from 30 December 2011 to 30 January 2012 to gain insight into the factors determining successful women's careers for the purpose of effectively building and transforming a career. Women aged from 29 to 58 years participated in the survey.

This is pilot research. The research aim was to investigate the factors determining successful women's careers.

Research tasks:

1. To make a theoretical research on the factors determining successful women's careers;
2. To analyse the factors determining successful women's careers from the point of view of respondents.

To achieve the research aim and execute the research tasks, the legal framework and various information sources were exploited. A statistical research method – descriptive statistics – was employed for analysing statistical data; a sociological research method – a questionnaire survey – was employed to identify the factors determining successful women's careers. Research locations: the State Employment Agency's Jelgava Regional Department, the State Police's Zemgale Regional Department, and social networks.

Results and discussion

The life stages of adults are characterised by higher mental, intellectual, and physical achievement trends as continuous periods of a personality's changes and growth.

The period of adulthood is classified into two stages:

- the 1st stage – the early period of adulthood (aged 20-40);
- the 2nd stage – the middle period of adulthood (aged 40-60).

The development of an adult individual depends on tackling the problems of previous periods – acquiring trust, autonomy, initiative, and love for work. Achieving personal maturity is the most essential formation in this period. Upon reaching the 2nd period of maturity, a new parameter of personality emerges – on the one hand, overall humanity, on the other hand, egoistic stagnation. E.Ericson defines overall humanity as human ability to be interested in human destinies beyond one's

own family, to think of the life of next generations, future society, and the world (Ēriksons, 1998). Identity issues are topical during all the life periods of adults, and the processes of identity formation provide continuous life experiences for adults. G.Vaillant calls this period a stage of *career consolidation*, as individuals focus on studies, the consolidation of their social status, and providing for their family (Vaillant, 1997).

Other significant profession choice factors exist:

Parents' opinion. Children, who are in the focus of attention of their family, permanently receiving attention, love and respect, might grow up and become very sensitive and wish the satisfaction of these needs. In the future, they might be very sensitive and wish attention and positive attitude from surrounding people. In the result, they are attracted by professions that provide opportunities to contact many people and feel their respect. Such individuals prefer a job by means of which they can help others, or they pursue professions related to culture, possibly, art or entertainment.

A need to need to fulfil one's potential, i.e. to achieve self-actualisation. Individuals do what, to their mind, can bring the best satisfaction and maximally promote their personality growth.

Interest in a profession. Sometimes this interest, which is obtained from literature, movies, and television shows, is romantic. If an individual is not prepared for this work, such a work becomes burdensome and it ends with the change of the profession.

Prestige. A profession is chosen based on the understanding of its prestige in the society.

Gender role factor. For instance, women rarely chose a career of scientist, having doubts about their abilities in working in science. They prefer professions that enable them to dedicate more time to their family (part-time employment, less efforts and time consumption, thus career growth possibilities are limited and women are paid lower wages) or traditionally "feminine" professions in the field of pedagogy or care.

Orientation towards the system of social values established in the society, which reflects the path that women are aware of after making their profession choice.

A need for security and defence. Preferring a good job with stable income and a good education with large efforts dedicated to it may be viewed as an action or motivated search for personal security.

Unfortunately, the real life shows that in case of losing a job, individuals are often subjected to depression, social conflicts arise, and they get annoyed, which requires more care from the surrounding individuals; as a result, conflict situations increase in their families. The family is not always able to understand the one who lost the job and to give support to him or her. It is hard to go through a loss of job to individuals in their middle stage of life who worked for a long period in one job and who have no experience in searching for a job. (Rācene, 2012).

In the period of adulthood, life roles, which are played in different intensities and qualities of content during various life stages of individuals, characterise the career growth of individuals.

Finding one's own identity in close relations with other people and in professional activity is the most significant task in the period of adulthood. Identity formation is a non-stop process. The best indicators of life transitions for women are their family life periods and, according to studies, women might not have crises at the age of 30, 40, and 50. A child's birth or adult children leaving the family may be often regarded as a life transition. It is hard to women to find a special man, but also their careers are started later.

Starting a professional career, women not always follow a standard model of men's careers. A greater variety of forms is specific to the development of women's professional careers compared with men's careers. Part of women prefers a traditional model of men's non-stop employment, while other women decide to give birth to a child when they have made certain achievements in their professional activity. An average woman may dedicate ten years only for bringing up her children as long as they are small, and then she has 35 years to start professional activity, make achievements, or fulfil her other personal interests. (Rācene, 2011).

Working women differ, in general, from nonworking ones in the fact that they have a stronger physical and mental health. They rarely have depressions, and they rarely are sick with somatic diseases as well as heart diseases or have digestion problems. Women who work respect themselves more. It is especially characteristic of unmarried women, but also married women get more self-confident through their professional activity, especially if their activity is supported by their husband.

There is a contrast between women orientating towards a career and those a job for whom is not the most important aspect. For some women, care for their family is an important occupation bringing satisfaction, whereas it is a burdensome activity for others. Self-respect, satisfaction with life, and the sense of oneself sharply differ between career-oriented and no career-oriented women. Women, who characterise themselves as career-oriented, by working a full day, are completely satisfied with themselves. Women who are part-time employees and have a temporary job or position that is below their qualification are less satisfied with themselves, respect themselves less, and assess their abilities lower. The features of character of those women who do not regard themselves as career-oriented are opposite. For them, self-respect and satisfaction with life do not relate to full-time or part-time employment.

Autonomy is one of the features of character that is essential in the development of women's careers. Autonomy may be characterised as a feature of character without which a woman is not able to become the leader of her life. Independence specifies the autonomy of women. Women having a high level of autonomy are mainly career-oriented, whereas those with a low level of autonomy are family life-oriented. (Miķelsone, Strods, 2008).

Thus, the middle period of life is a time when people critically assess and analyse their life. They may be satisfied with themselves if they believe that they have reached the top of their possibilities. For others, such an analysis might be painful.

To feel satisfaction with their life, people have to execute various tasks. These tasks are determined by their age, social status, position at work, family status etc. At the middle period of adulthood, these tasks are as follows (Miķelsone, Strods, 2008):

- achieving civil and social accountability;
- achieving and retaining the standard of living targeted;
- choosing appropriate kinds of activity to spend leisure time.

The present paper includes the findings of the survey on the factors determining successful women's careers. Women mostly aged from 29 to 58 years participated in this research; the age range was 29 years. Since women working at the State Police and other women who use the social network www.draugiem.lv as well as the author's acquaintances were selected as respondents, a trend was observed that by education, 48 % had higher education, 26 % had a master's degree, and 26 % had secondary education. Of the respondents, no one had primary or even lower education as it is usual when conducting a survey among the unemployed. It indicates that the educational level enables individuals to find and retain a job.

The respondents were asked to rank the factors determining the successful development of women's careers by their significance (Table 1).

According to the respondents' answers, educational level is in 1st place, psychological climate is in 2nd place, attitude of managers is in 3rd place, distance between the workplace and home is in 4th place, and woman's age is in 5th place.

Table 1

Place of the factors determining successful women's careers

Data obtained during 30 December 2011 - 30 January 2012 by anonymously questioning women, n=39

Factors	Place
Educational level	**1**
Psychological climate at work	**2**
Attitude of managers	**3**
Distance between the workplace and home	**4**
Age	**5**
Number of jobs at the place of residence	6
Place of residence	7
Financial situation	8
Lifestyle	9
Physical characteristics	10
Children (their number or no children)	11
Gender	12
Family status (married, not married)	13
Family experience (experience as being parents)	14

According to the respondents, the following more factors affect successful careers of women:

- wish to achieve something;
- preconception;
- coincidence;
- social connections, influential acquaintances;
- personal features of character;
- career opportunities at the workplace;
- woman's own wishes;
- nationality;
- religion;
- competition in the labour market;
- educational level;
- support of family members and friends for the career chosen and their understanding of it;
- public opinion;
- ability to position oneself correctly;
- attitude to one's own career growth;
- wage;
- competence, communication, positivism, appearance;
- spouse's support for the career chosen as well as the bringing up of children;
- internal feeling, psychological condition;
- personal features of character (purposefulness, insistence, being enterprising, openness to acquiring new knowledge etc.);
- confidence about oneself as a capable or weak individual;
- interest in the relevant area and readiness to raise one's qualification;
- skills in planning and organising one's work and life in general;
- sense of accountability and skills to make important decisions independently.

The respondents were asked, "Which of the given personal features of character determine the successful development of women's careers" (Table 2).

Table 2

Place of the significance effects of personal features of character

Data obtained during 30 December 2011 - 30 January 2012 by anonymously questioning women, n=39

Personal features of character	**Place**
Coping with complicated situations	**1**
Purposeful	**2**
Accurate	**3**
Enterprising	**4**
Trustful	**5**
Sense of duty	6
Drawing logical conclusions	7
Good perception	8
Coping with mental stress	9
Making decisions fast	10
Accountable	11
Well-disciplined	12
Industrious	13
Decisive	14

According to the respondents' answers, coping with complicated situations is in 1st place, purposefulness is in 2nd place, accuracy is in 3rd place, being enterprising is in 4th place, and accountability is in 5th place.

One of the studies conducted by Dina Bite at LLU investigated *Women's Professional Careers at Small Towns*; it was found in this study that there was a strong relation between the social environment and infrastructure and the employment situation, therefore, purposeful career growth is possible for a limited number of professions and jobs. In small towns, women mostly build their professional career in the so called feminine professions – pedagogy and health care – and are mainly employed at national and local government institutions and enterprises. Various phenomena of gender segregation in small towns are determined by age and gender stereotypes. Women in small towns choose various resources in building their professional career. The attitude of neighbours often limit their activities, therefore, women in small towns have to face various barriers in their professional career. The study does not provide convincing arguments that women knowingly chose a small town as the environment where to build their professional career (Bite, 2007).

American scientist Ellena Ostrow is a life and career instructor, which is presently a very popular kind of occupation in the USA, who practises and studies women's careers and their change. Owing to her practical experience and studies, she concludes that career change at the middle age is very different from that done at the age of twenty or thirty. At the middle age, women tend to think and analyse the period between reality and dreams. Women understand and wish their life to be wholesome, as no second chance will be given (Ostrow, 2012).

After being familiarised with experiences and research papers of foreign and Latvian scientists, the author concludes that a successful women's career is promoted by the environment in which a woman lives, the family in which she has grown up, her own family, her place of residence, her possibilities for education to perfect and develop herself in various ways, and her personal features of character. A great role is played by support for her career – starting with her relatives such as the husband, children, parents and ending with her job, colleagues, and support from municipal and national governments.

Conclusions

1. A career is a whole life of individuals that includes their family, leisure time, and what is done for society and for self-development. There are five interrelated areas of life to which women dedicate a lot of time, energy, duties, and attention, and they are: a job, the family, mentality, a civil society, and leisure time.

2. The most significant profession choice factors are: parents' opinion, need to fulfil one's potential, interest in a profession, prestige of a profession, gender role factor, orientation towards the system of social values established in the society, need for security and defence, and psychosomatic illnesses.
3. According to the empirical study, the respondents admitted that the successful development of women's careers is affected by: educational level in 1st place, psychological climate in 2nd place, attitude of managers in 3rd place, distance between the workplace and home in 4th place, and woman's age in 5th place. By significance, the respondents ranked the personal features of character as follows: coping with complicated situations in 1st place, purposefulness in 2nd place, accuracy in 3rd place, being enterprising in 4th place, and accountability in 5th place. The most essential skills were ranked as follows: skills in organising one's work in 1st place, skills in making decisions independently in 2nd place, computer skills in text processing in 3rd place, foreign language skills in 4th place, and skills in finding solutions to problems in 5th place.
4. Autonomy is one of the features of character that is essential in the development of women's careers. Autonomy may be characterised as a feature of character without which a woman is not able to become the leader of her life. Independence specifies the autonomy of women.

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CONSTRUCTIVIST APPROACH TO DIALOGICAL CAREER COUNSELLING IN VOCATIONAL SECONDARY SCHOOLS

Inita Soika Mag.paed.
Institute of Education and Home Economics, Latvia University of Agriculture, Latvia
inita.soika@inbox.lv

Abstract. Constructivism and its dynamic nature from alternative approach in many parts of the world now become the traditional approach for individual career development and counselling, emphasizing his unique learning experience that is based on self-organizational activities for his goals of future life setting and achieving. As reveals studies of foreign scientists V.Peavy, M.Savickas, L.Nota in the U.S., W.Patton, M.McMahon in Australia, M.Kuijpers, F.Meijers in the Netherlands a constructivist approach to career counselling is beneficial, especially for social risk group of young people, which accounting for more than one-tenth of active employment of society. In order to young people including vocational secondary schools' students successfully develop their careers and obtain career management skills, it is necessary a support of systematic career development in different ways on competence-based and dialogue-oriented learning environments: exploring and developing themselves, exploring education and work opportunities as well as planning their career in a chosen profession. Therefore *aim of the study*: theoretically evaluated and justified a constructivist approach to the dialogical career counselling in vocational secondary schools. *Objectives:* 1) to determine the nature of constructivist approaches to career counselling; 2) to analyse relationship between the constructivist approach and dialogical career counselling in the career development; 3) to evaluate opportunities and action of constructivist approach in dialogical career counselling in vocational secondary schools.

Keywords: constructivist approach, dialogue, career counselling, vocational secondary education.

Introduction

Now the dynamic context of the era in the world of work has changed people's understanding of career and its development. According to the scientists Amundson (2005), W. Patton and M. McMahon (2006) considers, the world of work is going through dramatic and irreversible changes. People change occupations and job at different phases of life and career choices is just one of the many challenging aspects of the individual confronted face to face in their life. Over time, career theory has expanded and offers new theories. Therefore now, as never before, these theories adapt the complex socio-economic backgrounds converging with that constructivist approach. Evaluating career counselling practice in 2004 the European Commission (Career Guidance: A Handbook …, 2004) pointed out inefficiencies of career counselling in EU Member States, including inability to develop an individual career management skills, lack of cooperation between the interested parties; under-utilized information technology and other cost-effective counselling techniques, besides many of students of vocational education establishments received significantly less career support than general education students.

Author of this article studying experience of European countries (Kuijpers, Meijers,..., 2011; Youth on the move, 2011) in the field of career counselling and developing support system concluded that the period from 2004 to the present has brought positive results - recognizing that dialogical counselling environment can develop, if school education is integrated career education. It disclose study results where the Dutch team of scientists (Career learning..., 2009) has defined a career dialogue in the vocational secondary schools as a conversation or discussion between the student and the trusted adult (ideally, in this case, if it had been a teacher, vice-director and/or school career counsellor), which explicitly discusses the importance of the experience gained by the student what has acquired the practical tasks at school and/or practice time outside of school. This conversation based on clear relationship between the students' experience which has gained into professional practice or labour market and developing of self-image and work identity. The researchers noted that it is important to promote student's internal dialogue focusing on construction of their personal meaning as well as to external dialogue in this process. The study results showed that career dialogue in the vocational

school and practical discussion firstly, promotes formation of three career competencies: 1) career reflection of the character and motivation, 2) career formation, - the work exploration and professional progress; 3) networking and development. The scientists suggested the use of these competencies in learning experience and specific career decision-making. Secondly, encouraged and promoted career dialogue allows greater impact on development of student career skills and work identity than personal qualities.It also pointed out the topicality of constructivist approach in career counselling in the learning environment and successfully operated as a system, by which result the researchers of Hague University (Career learning…, 2009) have come to the conclusion that 1) vocational secondary schools also perform guidance functions because essential attention is paid to students' career skills development and professional identity, 2) vocational training and learning environment is the best place where students acquire practical experience in professional training.

While in 2006 Latvia was developed Concept of Career Development Support System (MK rīkojums Nr.214, 2006) - which provides self-cognition, self-development, career exploration and career planning of vocational secondary schools' students (Karjeras izglītība..., 2006) - cannot be maintained that career education and guidance should be fruitful, because in generally implementation of career education in vocational secondary schools has not yet emerged as an integrated whole learning package, where each teaching staff is fulfilling their role. In schools where career education programme is implemented, measures being focused on the cognition of potential employment aspect. There is no sufficient contact with activities that promote motivation to learn, order to improve learning achievement and reduce the number of not graduated students. Guidance and counselling is the most organized for the groups, applying the "average" student, and these activities are often not very effective in risk groups and/or particularly gifted young people. Successful career development can occur under condition if students develop their career management skills in guidance of a qualified professional or tutor. But professional career counsellors are currently working only in a small number of vocational secondary schools.

In order to develop students' career management skills *(to identify and evaluate their interests, abilities*, values; to work *with information resources; to assess their compliance of abilities and opportunities*; *to find the necessary support; to develop policy options in their career planning*; *make decisions and* to *deal with uncertainty)*, vocational secondary schools of Latvia should be built dialogical learning environment, which takes into account personal and social significance of students' diverse learning experience and the conversations and discussions going on career competencies-based learning environment. Therefore, in scientific article is to answer the following ***questions:*** *What is dialogical career counselling; what are its features, functions*, principles? *How a constructivist approach is influencing dialogical career counselling* in *vocational secondary schools?* ***Aim of the study***: theoretically evaluated and justified a constructivist approach to the dialogical within career counselling in vocational secondary schools. ***Objectives:*** 1) to determine the nature of constructivist approaches to career counselling; 2) to analyse relationship between the constructivist approach and dialogical career counselling in the career development; 3) to evaluate opportunities and action of constructivist approach in dialogical career counselling in vocational secondary schools.

Methodology

The scientific article is expanded theoretical discussion of the topicality of constructivist approach and uses career counselling in vocational secondary schools. The scientific article analysed 1) theoretical cognitions, 2) practical experience of the Dutch, British, American, Canadian and Australian scientists about the use of constructivist approaches to dialogical career counselling.

Results and discussion

In the traditional approach of career counselling has been need to understand the context of time, training and work-life, which referred as career guidance. At that time which was the last century sixties, seventies, eighties the world of work essentially is provided a person with information about work of their lifetime, where issue of individual's career choices, typically dominated by school leaving age. In order to promote individual's career choice, knowledge of the world of work became essential part of the career counselling process. Therefore, such career counselling was mainly seen as

an objective cognitive problem-solving process in which, on the basis of knowledge about self and the world of work, was created the right career choice for individuals (International Handbook..., 2008). Traditionally, in Western countries, career guidance in education is mainly based on the feature-and-factor approach (Career Guidance: A Handbook …, 2004; Sultana, 2004) and rooted in cognitions of J. L. Holland (1997), because those have had a profound impact on the form and content of an individual's career choice and decision-making how to identifying career behaviour. In this model, a good career choice was made when an individual's personality and talents coincided with the needed knowledge and skills of work-related issues. But now career counselling have more problems because there is encounter with the deeply personal trait interaction of individual's, which is difficult to understand before the individual is not revealed their philosophical beliefs and values (Guichard, Lenz, 2005). Over the past few decades has changed the social environment and the human "self" concept, which also affects the career counselling field. As pointed out by the Canadian scientist V.Peavy (2004), a major shift from the theory of *psychometric self- formed* by the changing factors to the *narrative self-made* up stories and meanings. Also, the dialogue is paying increasing importance, because, as one of the most valuable tools of the human mind, is sufficiently valuable for the development of the human personality in the multiple areas of his life, when it comes to his career. As written by H. J. M. Hermans and A. Hermans-Konopka (2010), it means learning process which shows innovative solutions and further develops the individual's current position, thinking about their place in society.

For the main quality characteristics of dialogue they considered: learning experiences and innovative solutions of self; it develops a dialogue space; it recognizes the inevitable misunderstandings of the roles and include changes not only from others but also other positions in the individual; it recognizes the importance of public power differences, reflecting the dominance of relative position of each individual self; it can raise with participation in the wider field of information and awareness; it shall benefit of the speaking silence. Both scientists believe that these dialogue functions are related to learning processes in society, where facing different social groups and individuals and that are not only among them, but also increasingly located within them.

Author of this article investigated the questions: *What is dialogical career counselling? What are its features, functions, principles?* And became acquainted with works of several careers scientists (Patton, McMahon, 2006; Guichard, Lenz, 2005; Savickas, 2002, 2005; Savickas, Nota, 2009, Peavy, 2004), which are focused a constructivist approach to convergence of the counselling process. They all claim that constructivism is based on the individual's cognition and interaction of perspective development that is formed on the person and environment interactions. Based on the theoretical findings of scientists, the author highlights the main elements that characterize the constructivist approach in career counselling process.

- *Individual /customer / help-seeker* as an active participant, which interacting with counsellor and social environment, looking for stability and construct a meaningful career development scenarios for a particular stage of life. A person itself is interested in gathering information and searching, in such way experiencing the positive reaction to the counselling in his career making and planning process.
- *Counsellor* is an inquisitive, interested person who is focused on the interview.
- *The counselling relationships* are focusing on the counsellor and client collaboration, interaction and mutual participation.
- *The counselling environment* is the place where a person's career is assessing through his stories and constructed meanings, individual's attitudes and feelings.
- *Changes of the recursive character* because both individual's personal life and it events, including education, as well as his autobiographical stories, based on the past experience, which is being constructed through a new learning experience, and as a result are changing individual's views/ opinions/thoughts. Recursive changes are related to the events of past, present and future prospects.
- *Holistic approach* which shows that individual's career development is seen through all of the aspects that make up his life: work, family, leisure, spirituality and citizenship - hence job does not exist in isolation from the rest of the individual's life. Important is the context where

individual situated with their own subjective experiences and feelings, which also help to construct his life and career.

- *Nature of knowledge and learning*, where the language is crucial to understand and create knowledge.
- *The own counselling process*, where client's expectations and hopes are changes in his career decision-making and implementation, and a counsellor *enter the customer's living space* and to co-construct his career.

Proponents of constructivism (Patton, McMahon 2006; Savickas, 2005; Peavy, 2004) believe that individual is an open system, which interacting with the environment, looking for stability through ongoing changes. For example, W. Patton and M. McMahon (2006) reveal five basic assumptions: 1) active agency, 2) order, 3) importance of the same individual, 4) socio-symbolic relatedness, 5) development of lifespan. Active agency implies that individual is employed extensively by own life construction. Most of these activities are focused on aligning of the individual's life process which is important point of reference to the individual personal development in order to operate social and symbolic systems in which he live an important question is *how all of the above activities have actuated the ongoing development process?* Because nature of their events reveals how take place continuously the dynamic change in designing of individual's personality and his life in further. According to scientists J. Guichard and J. Lenz (2005), this in turn leads to the research question, which is still used as the basis for the application and development of the profession: *What are the factors and processes affecting person's self-construction?* While it remains within, it is important to understand *how people choose a profession* and *how individuals construct their lives through their work?* And finally, it should answer to the question: *How the individual can best to develop own life in the community where he lives?* Initially, this question emphasizes the need to focus on activities in other areas of life, not just work and occupation.

A convergence of constructivist approach in career counselling occurs fundamental changes in its character (Savickas, 2005; Patton, McMahon, 2006): 1) from the features to the context, 2) from regulations /instructions to the process, 3) from linear causality to the non-linear dynamics, 4) from the scientific facts to the story of the actual situation, 5) from the description to the modelling. It changes individual's thinking and understanding of the things that helps to design their life. M. Savickas (2005) considers that constructivism represents epistemological view, which emphasizes the individual's self-organization and self-management. He argues that the individual is able to actively construct own real life and significant work-related positions if used narrative method in counselling process. M. Savickas (2002, 2005) as a founder of the Career Construction theory, has determined that this theory is positioning social constructivism. From a social constructivist perspective with a career represents perspective or dynamic of chance which imposes a meaningful role for the personal memories of the past, present experiences and hopes for the future when establishing a model that portrays areas of the individual's life. Thereby subjective career which manage, regulate and maintain an individual's professional behaviour, stemming from the making of active processes not through a prior disclosure of the facts. Constructivist perspective requires that individuals being successfully guided in constructing of meaningful system order to fully integrate their views of the past events, present circumstances and requirements' of future (Amundson, 2005). Furthermore, the career counsellors redirects own expert role as a trouble shooter and play a partner role who carefully listens to the client life stories; notes how stories are constructed, notes the boundaries and possibilities of other explaining of stories (Brott, 2001).

In turn, the authors of Systems Theory Framework (STF) of Career Development W. Patton and M. McMahon (1999, 2006) considers that every individual' learning containing the complex dynamic processes through which he or she is self-organizing and reorganizing until reaching equilibrium (Figure 1). This system is seen as purposeful, continuously self-developmental human system that interacts with other systems, such as family, work, educational institution. In the heart of the Systems Theory (ST) is a human individual system, which displays different deeply personal impact on his career, such as identity, ability, gender, interests. A person as a social being makes their own individual social systems, as well as wider environmental/ social system. At the same time the system is affected by many factors such as geographical location and political decisions that can significantly

influence his career. Systems theory shows career development as a dynamic process through influences of different processes. Each system is an open system because it is exposed to various external influences, as well as the same may affect other systems outside its borders.

This interaction is called *Recursive*, which is represented by broken lines, and has permeable in boundaries of each system. Their impact on individuals can change over time. The final process affects opportunities that are represented by the lightning bolts, reflecting the increased visibility of opportunities that has an important role in career development. All effects in the system within the time - past, present and future - and are inextricably linked (Patton, McMahon, 1999). Theory system for individual career development requires counsellors to build complex transition from individual's traditional world-view to the future view of the world with a different causal explanation. It means – to combine traditional counselling approach with the ability to think a lot circular than in linear terms.

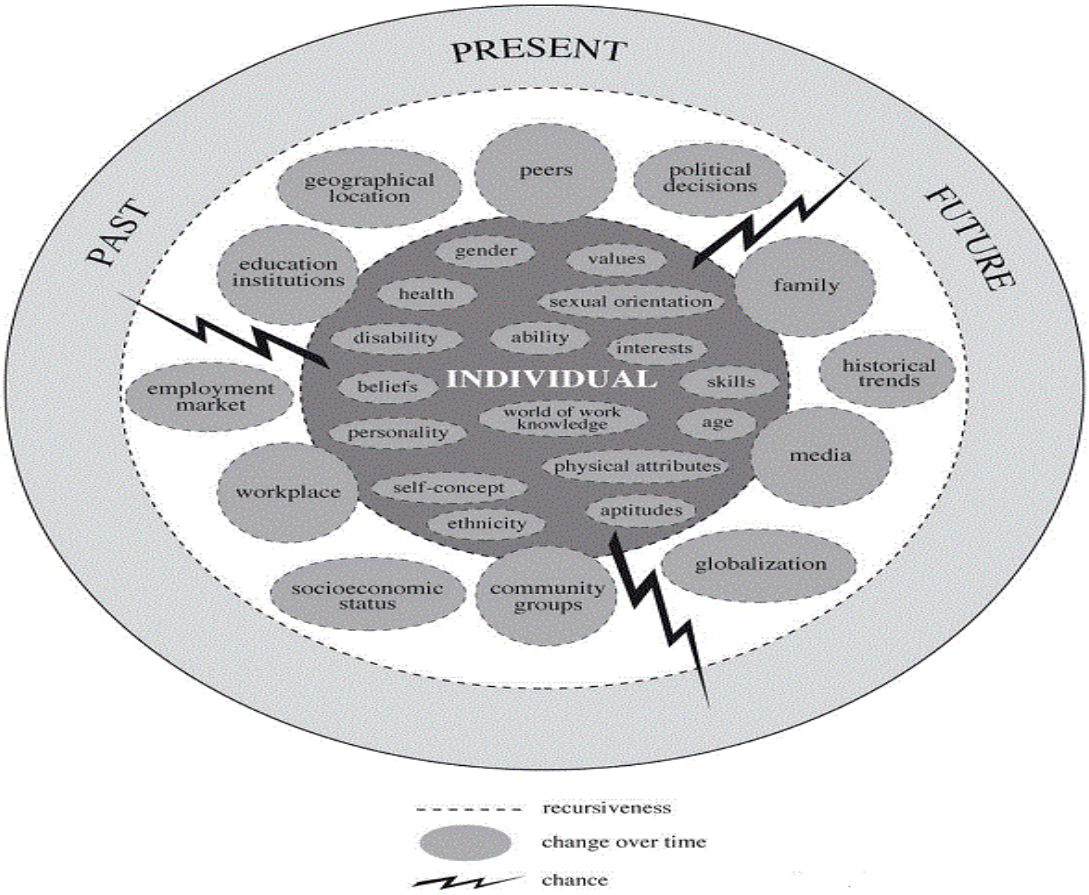

Figure 1. The dynamic process of individual in career counselling (Patton, McMahon, 1999).

Interaction between the counsellor and the client must be a system in which both client and career counsellor becomes as an element of system which is influencing each other. In interaction between these systems, the participants use a common language for the constructing career meaning that by V.Peavy (2004) considers becoming a key tool of counselling, reflecting the complexity of the counselling process and its place in the social and environmental-societal systems. Thereby the career counsellor's task is to understand the impacts of the client's career stories. Career counselling comprises an encountering of two separate systems, leading to the development of new systems. Each system boundaries must be sufficiently permeable in order be better visible individualities of both the counsellor and the client's personality; in order to develop consultative relationship and dialogue with meaningful results, excluding the possible manipulation of one or the other counselling participants. Thereby, as noted by V. Peavy (2004) and W. Patton and M. McMahon (1999), it enables career counsellors to clearly understand the growth of a client's story through the influence of his own system in the context of past, present and future; how impacting unique model of his social system - how he is

linked with a number of social groups. In this way can make easier exploration of client's life story, including a meaning of career (education and work) in his own life and counselling process goes a more successfully.

The most popular founders and developers of dialogue – M. Bakhtin, M. Buber and N. C. Burbules theoretical findings are validated in constructivist approach of career counselling. Therefore, studying the dialogue in career counselling from the constructivist approach point of view, the author of this article puts forward the following assumptions.

The dialogue based on communication, which includes an intelligent conversation and patient listening without interference. It means that dialogue involves cooperation, at the same time tolerated disagreements, misunderstandings an incomprehension. Overcoming these circumstances, it appears on respect, features of trust and reconciliation that in the real dialogue' environment from both communication parties tend to grow and to strengthen. It is a form of dialectic between feeling and thinking that in increasing long-term development of the hermeneutical development leads to the particular line of thinking. Consequently important is the spirit of dialogue, which maintains between its members (Burbules, 1993). Dialogue is driven by the spirit of discovery. It is characterized by exploratory and questioning tone. It foresees commitment to communicative interaction, the desire to *look at things* in order to reach the meaningful understanding or reconciliation between the participants. It has the ability to keeping long-term multiple views, with a primary interest in creating the idea. As written by N.C. Buber (The Letters of Martin Buber..., 1996) it is an encounter with otherwise-minded, gaining new experience and view. Encounters with other and fusion of horizons of thought/ understanding are possible only if there is a principled desire to understand the other person. In dialogue situation, it is possible if we listen, and limit ourselves. Since the dialogue is both an individual and public activity, listening consists of two strands - listening to others and listening to own self. Therefore, in dialogue silence is as important as speaking. It requires thinking and understanding in order to be able to create new meanings. Also a philosopher H. G. Gadamer (1982, 62) considers that the dialogue is a conversation where using a metaphor of the horizon - *we each have our own horizon of understanding,* individuals gain an understanding of the essence of things from their beginnings in origin (sometimes called the dialogically structured understanding). It is a process where dialogue' partners opens one to another, truly recalling their view through their beliefs and values perspective, takes on a new internal thoughts space that has a different experience of an individual. It is the ability range of the vision (imagination) which includes anything that can be visible from a general point of view. With these prejudices and understanding the individual involves himself in what is said. In conversation everyone is trying to understand the other person talks horizon that is not his own, and may be different because the negotiations are tested through the prejudices and understanding.... *Only through search, we learn from others, and at the same time we claim to that it is can be critically biased... We are opening to the ability to understand what others say. Such openness is not designed as a mutual agreement, but rather as a dialogue back and forth. We are looking to open other people's points and horizon lines,* says H. G. Gadamer (1982, 78).

A dialogue is a mutual and co-constructed, based on the consultant and the client shared activities - shared listening, shared thinking, feeling and shared a common design, common knowledge, coordination and consolidation of intelligence, creativity and wisdom, where each party of dialogue must play contribution towards a useful answer to the questions *What is happening in this particular situation?, What should I perceive, learn, know and do in order to move forward in life?, What can I do next?, How should I live my life?.* It corresponds to M. Bakhtin (1984, 29) cognition about invaluable role of dialogue in existence of human as social beings; moreover, *the truth is born in dialogue*. It is a constructive cooperation based on common humanity and respect for the differences. This revealed dialogue anthropological aspect is expressed of M. Bakhtin (1984, 29) in the following words: *only in the interaction they open to each other, that is, man to man*. Through common operation of dialogue partners is clearly visible principle of the formation and development of the individual personality because personal self-reflection is able to emerge in interactions with others and build own *I* only if he puts towards to other *I*. This idea tune with the M. Buber, who say that *I* not in itself, is only *I* which are based in *I-You* and *I-Other* (The Letters of Martin Buber..., 1996, 16).

The identity of individual and focus on helping himself tune with the M. Bakhtin (1984) reported that self of the human is polyphonic. He emphasizes that it is appropriate to perceive the self of the human as a hotel with many rooms, each of which contains a voice from herself that never fully checking out at the hotel: *you can stand in the background, but you can always call the forefront, order to as a voice of experience talking again* (p. 16). Often the trust and responsiveness of the fully dialogue affecting individual as the seeker becomes more focused on helping himself and basically says, *I took part in valuable and self-identifying conversation,* or even better, *I did it myself.* The researchers of constructivist approach (Peavy, 2004; Savickas, 2002, 2005; Paton, Mc Mahon, 1999; 2006) points out that the *self* of the human is multiple, co-constructive, and narrative and in largely linked with relationships. And it occurs under the condition in which an individual's life to get some experience and a variety of social roles helps to discover his multidimensional *self* on a dialogue-based consulting environment.

The need for a new vocabulary in order to understand the evolution and functioning of the self of human and his identity and community has emerged. As written by V. Peavy (2004, 14) order to understand human behaviour and social dynamics, the concepts of *narrative, symbolic coordination, self-construction, life area attitudes, ethical assumptions, the mood* and *creation of meaning* are likely to be more useful than the concepts as a personality variable factors, characteristics, classification and behaviour. He points out that a person's life area of thoughts, feelings and actions can also be seen in the context of linguistic, rather than focus only on visible behaviour ... *We can talk about local and cultural knowledge and how such knowledge consists of people's attitudes towards life* (Peavy, 2004, 6). Also, one of the essential categories in the development of M. Bakhtin (1984) dialogue is *language*, because with its help formed dialogue and understanding inside it. Another category is a *voice* that represents the specific socio-ideological position, conflicting juxtaposition, which includes the same core of the language with all the changes in the historical development of communication. And another category is *understanding* as a third of the M. Bakhtin (1984) dialogue categories and as post modernist discourse. He recognizes that only talking and making conversation can create mutual understanding and coexistence among participants in the dialogue. At the same time, the text becomes a subject of scientific research; it may not be the subject of dialogue. Only mutual speaking concerns to the subsistence of epistemological principle of M. Bakhtin dialogue. Therefore V. Peavy (2004) cognition can be acceptable that the words are the tools for the construction of life and living. It is important, from any vocabulary of an individual chooses their instruments.

Conclusions

Dialogical career counselling describe conversation or discussion among the involved actors/individuals of counselling process, where occurs the meeting with other ways of thinking, attitudes and understanding, where appears the following change of identity of the customer's as a help seeker; obtained a new experience and perspective; the transition from uncertainty to certainty in the setting and achievement of the career goals, as well as meaningful life designing; the participants come together on changed thought process and actions. Constructivist approach to career counselling provided the following.

- Rapidly changing socio-economic context and the various dynamic processes in a society that requires every individual to realize himself as a unique self-organizational and self leading personality with the flexibility of thinking, adaptation and the desire to continuously educate for the successful construction and developing their careers.
- The individual’s stories of the actual situation of career problems because the way he speaks, talks, writes and creates texts reveal his personal identity interests, needs, values and beliefs of the past, present and future perspective. It can be done in case of listening to the discussion partner and listening to himself;
- Unpredictability and non-linearity of the different career scenarios and modelling of situation because an individual as a seeker acting well targeted and continuously self-human developmental system that interacts with other systems.

In order to act dialogically within career counselling using constructivist approach to secondary vocational education, calls for dialogue or conversation between the student and the trusted adults –

teacher of the group, subjects' teachers, supervisor of practice, vice director and / or school career counsellor - which is based on mutual interactions that encourage students to internal dialogue, focusing on the construction of his personal interest and meaning constructing, as well as to external dialogue that promotes reflection on their learning motivation, job research and professional progress and networking for their careers support.

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THEORIES OF MOTIVATION FOR THE EDUCATION OF THE UNEMPLOYED

Gita Stalidzāne Mg.oec.
The University of Agriculture of Latvia, Jelgava, Latvia
gitanus@inbox.lv

Abstract: Research about the characteristics of the stages of development of human personality, which is supported by the theories of psychology and motivation. The topicality of this research is to study the theories of motivation for the motivation of the unemployed. The aim of the research – to study the theories of motivation which can be used for the unemployed to obtain their education according to the economical situation, as in changing circumstances different new forms of employment are being formed. The main problem is the contradiction between the recognition of the value of education and the lack of motivation for the unemployed to educate themselves. In the recent years vital changes in the development of the economic sector and labour market have been observed in Latvia. In the context of demographic changes and the ageing of the society, changes are happening also in the sphere of career development – it is extending. These days both the students and the adults have problems with choosing the education and profession, therefore it is necessary to ensure a life-long motivation for the inhabitants. The research deals with the work with the unemployed who have lost their job, have not started the studies, do not work and feel helpless, do not understand or resist the model of operation of the society. Metamotivation refers to the behaviour which is caused by the needs and values of development. The most important is to help the people who drift along their life and are not used to planning their own life. The status of the unemployed comprises certain social groups – men and women, capital city, town and countryside inhabitants, people with different levels of education, income and marital status. It is important to find out and understand the environment these people live in, and show the ways, which the individual can make use of to be able to become self-actualized, which means a constant process of developing their own potential. Therefore to research the motivation of the unemployed to educate themselves in different ages is very important.

Keywords: motivation, education, self-actualization, metamotivation, skills.

Introduction

To reveal the interaction of motivation, self-understanding and the productivity of action in a particular age, it is important to find out the essence and interaction of these notions. For this purpose the analysis of pedagogical, psychological and philosophical literature was carried out, evaluating the problems of motivation, self-understanding, action, person's skills and education in the written works by different authors.

The theoretical basis of the research is formed by: the theory about the social situation of the development of personality by L. Vygotsky (Выготский, 1991), the theory about the importance of the subjective needs of the individual in the development of the personality by L. Bozhovich (Božoviča, 1975), the activity theory by A. Leontev (Леонтьев, 1975), the theory about the self-perception conception by R. Berns (Бернс, 1986), as well as the self-actualization theory by A. Maslow (Karpova, 1998).

The theories of motivation are classified as theories with biological basis, theories with social basis and systemic motivation theories. H. Hekhauzen (Хекхаузен, 1986) in his work analyses three trends of researching the problem of motivation – the theoretically instinctive, which originates from the works of V. Mak-Daugolla; the theoretically personal, which originates from the works of Z.Freud (Atkinson, Birch, 1978); the theoretically associative, which developed the ideas of E. Thorndike and I. Pavlov (Cattell, Child, 1975). K. Roger is mainly known for his idea about the „self" conception – the basis of personality, and the personality-centred psychotherapy (Roger, 1961).

A great attention is paid to the individual's self-assessment, and it is considered that individuals can achieve their aims if they have a positive attitude towards themselves, high level of self-respect and self-confidence. A. Maslow comes to the following qualities of the self-actualized individuals (Karpova, 1998): more effective perception of reality and more comfortable attitude towards it, the self-acceptance, the acceptance of the others and the nature, spontaneity, simplicity, artlessness;

focusing on the task (opposing from focusing on oneself), certain isolation and need for solitude, autonomy, independence from the culture and the environment, constant freshness of the assessment, mysticism and the experience of higher awareness (altered states of consciousness), togetherness with others, the sense of belonging and participation, deeper personal relationships, the democracy of the character structure, the skill to differentiate goals and means, the good and the evil; philosophical, generous sense of humour, self-actualizing creativity, resistance to acculturation, transcending of any separate private culture, namely, exceeding its boundaries.

Author analyses A. Maslow's need of self-actualization in the book „Personality. Theories and their creators" by A. Karpova, it is possible to reveal five types of behaviour directed towards its accomplishment, which the author has analysed and listed in Figure 1.

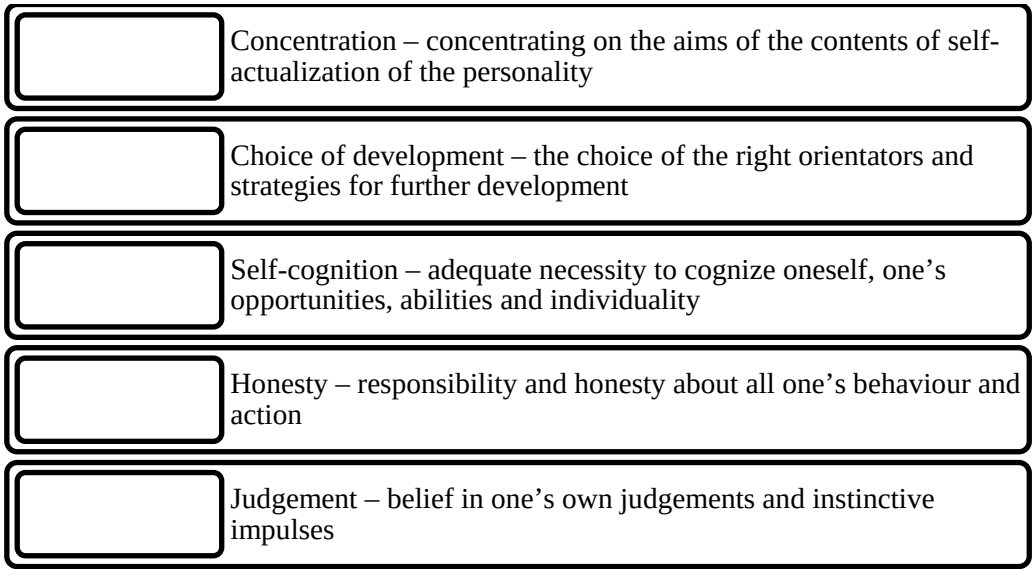

Figure 1. Behaviour types of self-actualization (the author's design).

The five behaviour types described by A. Maslow show, as it is depicted in Fig.1, that to achieve their goals the individuals have to focus on personality-related aims without going into detail. It is important to choose the right means and the ways of accomplishment for achieving the closest goals. Only correctly organized self-cognition and its results allow objectively organize the concentration for the personality and the choice of development. Belief in one's own judgements and instinctive impulses.

A.Maslow claims that sense of belonging, suitable profession and defending of certain values are as important for the psychological wellbeing as safety, love and self-respect. **Metamotivation** refers to behaviour which is caused by the needs and values of development. According to A. Maslow, such kind of motivation is more common for individuals who have self-actualized and met the basic needs. Very often metamotivation is a form of self-sacrifice to particular ideals and aims, to something „outside oneself". Maslow points out that metaneeds are the continuation of the fundamental needs (continuum), therefore the frustration of the fundamental needs cause metapathology. Metapathology can appear as inadequacy of values, pointlessness and uselessness of life (Karpova, 1998).

The majority of psychologists (Latvijas organizāciju..., 2013) work only with the **deficient motivation**, with the behaviour, which is focused on satisfying or not satisfying some needs or frustration. Starvation, fear, pain these are the primary examples of deficient motivation. When organism feels neither starvation, nor fear, nor pain, new kinds of motivation appear, such as curiosity and need for a game, for playing. Social life motivation refers to enjoyment and satisfaction in the presence or to the wish to find valuable aims (the motivation of growth or metamotivation). „Deficient" motivation becomes apparent in the necessity to change the existing order of things because it is felt as dissatisfaction or frustration. Metamotivation is the indicator that the individual is progressing by overcoming the functioning of the deficient level.

Also K. Rogers is considered to be one of the founders and leaders of the American humanistic psychology. K. Rogers believes that the **tendency of self-actualization** is fundamental for every living thing and the essence of the individual. It means to spread out, expand, become autonomous, express oneself, become mature and competent to strengthen the organism and self-identity. The term „self-actualization" was used already by Aristotle, who believed that self-actualization meant to be accomplished in reality, not only as an intention (Аристотель, 1983).

In such a way the structure of personality includes both the organism and the phenomenal field (the whole experience of life), as well as the self-identity (the differentiated part of the phenomenal field), which is the model of conscious feelings and self-assessments – the idea about Self and the ideal Self. This is the structure in statics. The conformity (congruence) between the experience and self-identity, the necessity of its constant formation and preservation ensures the functional aspect of this structure model of the personality.

The experience is generally to be considered as the formation part of the pre-reflexive and pre-verbal awareness. The approach of the humanist K. Rogers deals not so much with the investigation and analysis of the conflicts, but with creating such circumstances which allow to accept and implement oneself (Karpova, 1998).

In Fig. 2 the author depicts the types of the theories of motivation, which by motivating and encouraging the inhabitants to join the programmes of adult educational courses and thematical seminars, can focus on increasing the motivation of the unemployed, increasing the academical achievements, thoroughness of the knowledge and ensure the succession of education, as well as the integration in the society.

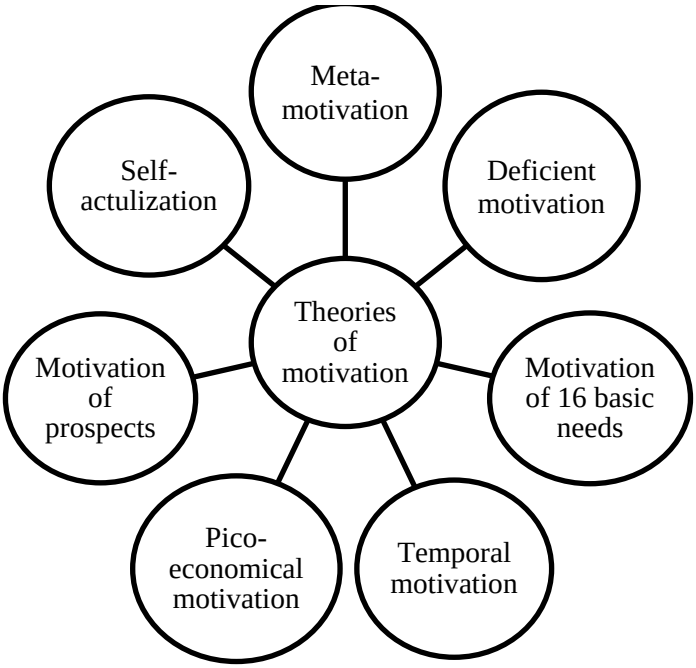

Figure 2. The summary of the theories of motivation (the author's design).

Philosophers and psychologists, when investigating the development of the human personality, also have noticed cyclic regularities in its lifetime, that starting from the birth until the last hour of life it runs in the „short" 7-year cycles (periods), which form already the longer ones 21-year cycles (Ekspertīze par bezdarbnieku..., 2011). The human lifetime cycles continue in the further generations and civilizations, creating different social formations (Ekspertīze par bezdarbnieku..., 2011).

The aim of the research – to study the theories of motivation of the unemployed, how to help them adapt their education according to the economical situation, as in changing circumstances different new forms of employment are being formed. Motivation is the complex of inner processes, which is complicated, because it comprises different processes and different activities. Motivation is focused on achieving the goals. The goals and the discrepancy of goals are considered to be the main stimuli

which draw attention and create action, while the complexity and importance of the goals are connected with the intensity of motivation. By analysing the theories of motivation, the author wants to find a solution for increasing the professional development of the unemployed according to the demands of the labour market. An essential precondition in the action of the human is being clearly aware of the aim, motivated action and constant self-development.

Methodology

For the research theoretical methods have been used – studying, analysis and evaluation of scientific literature and different sorts of documents, as well as the reflexion of personal experience. Analysing the situation of the problem of unemployment, as well as dealing with these issues has been the daily work for the author already for several years at both the Employment Provision State Agency Jēkabpils section and the Institute of Education and Home Economics of the University of Agriculture of Latvia. Non-structural observations and the obtained realizations at the work place at the Employment Provision State Agency Jēkabpils section are important for the author to carry out her research. The theme of the research chosen for the Doctor's Paper about the economically inactive inhabitants' integration into the labour market for decreasing the unemployment by promoting the motivation of education, in the author's opinion, relates to the dynamic time of changes in the education, to promote the development of a knowledge-based society. The aim of the research is to analyse the theories of motivation of the unemployed and show that in the situation of a crisis scientifically proved research of the labour market is necessary to be able to predict the development of labour market in the future and determine effective mechanisms for increasing the motivation of the unemployed and dealing with the problems of economical passivity. Documents and other sources of information in the aspect of the research and the tasks have been studied, analysed and evaluated.

Results and discussion

According to the studied and analysed materials of different sources of literature about the theories of motivation and the increasing of the motivation for the unemployed in the sphere of education, it is possible to conclude that essential economic benefits can be gained by improving the basic knowledge and focusing on people with low level of skills and socially unfavourable groups of different age. According to the demands of the labour market, the aims of education, motivation and skill improvement are described in the Lisbon strategy, drawing attention to the growth and employment, emphasizing knowledge, novelties and human resources to achieve these aims (Nacionālā Lisabonas programma..., 2005).

The difference between what skills are demanded in the labour market and what skills are offered is one of the main problems that exist in Latvia. Therefore more than ever before it is important to pay attention to the sphere of education and tuition. By improving the quality of the system of education – from acquiring the basic knowledge to studies, all social groups in Latvia have been given larger opportunities to acquire comprehensive and vocational education. This process includes the promotion of lifelong education, as well as it involves study programmes which are important for the development of national economy (Komisijas paziņojums..., 2008). The main aim is to strengthen the capacity of the educational establishments, in such a way helping to achieve the social and economic aims.

Cedefop – the Centre of the Development of Professional Education of Europe according to the assessment of the prediction in 2006 – 2020 predicts about 100 million vacancies in the 25 member states of the EU. In addition to the 19.6 million new job vacancies there are predicted 80.4 million substitute job vacancies which could be available because of the retirement or quitting the labour market of the employees. The agricultural and the traditional industry branches are gradually being replaced by the service industry (Figure 3). In 2020 almost three quarters workplaces will be in the service industry (Komisijas paziņojums..., 2008).

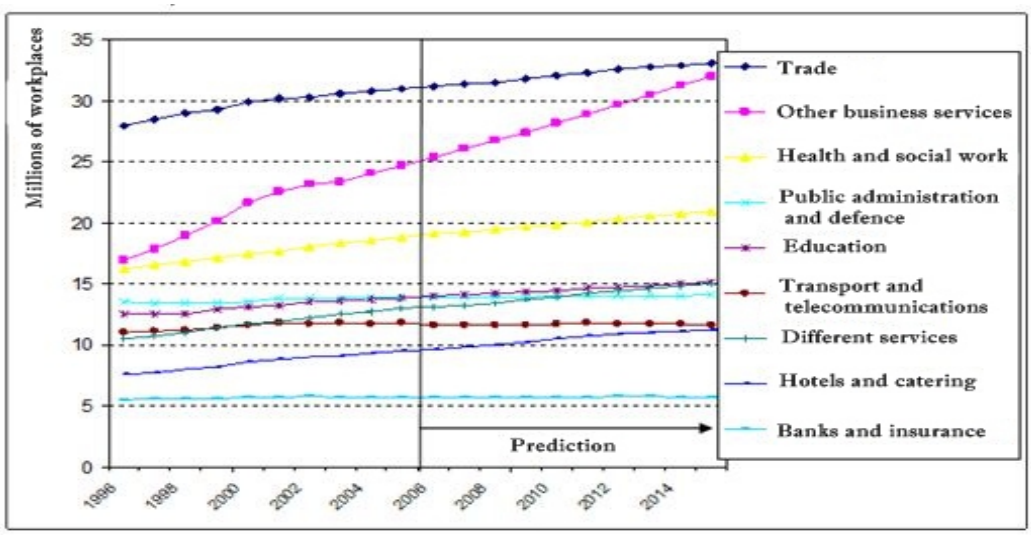

Figure 3. The tendencies of employment in the sphere of service industry by 2015 ES-25
The source: (Komisijas paziņojums..., 2008).

In the majority of intellectual labour professions highly skilled employees will be needed, and employers with average level of education more and more will have professions which require qualification. As the increase of general indicators of education is more rapid than the changes in the labour market, only half of the unskilled labour will be performed by employees with low level of education (Figure 4) (Komisijas paziņojums..., 2008).

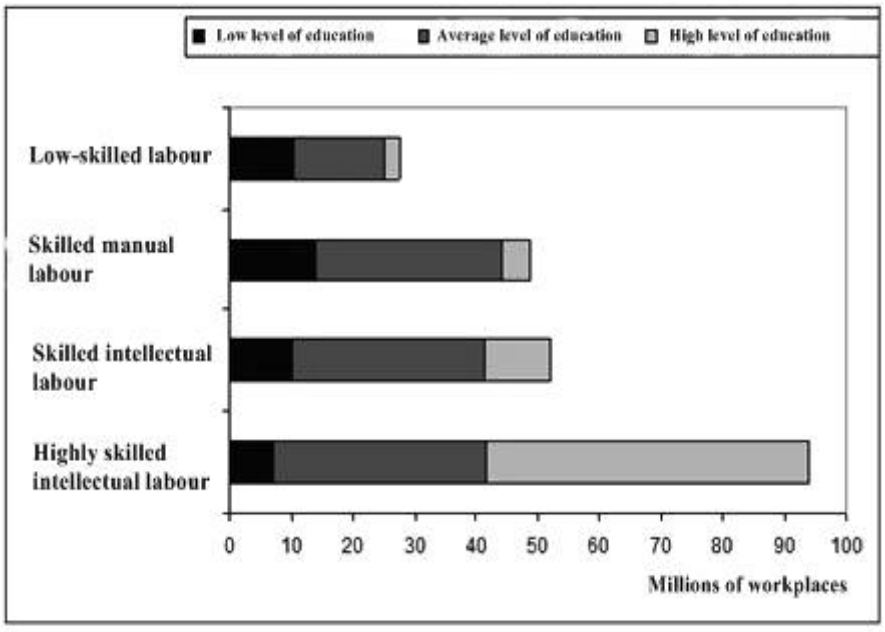

Figure 4. The predicted level of employment by 2020 in big professional categories and for different levels of education ES-25.
The source: (Komisijas paziņojums..., 2008).

The improvement of qualification is essentially important for the future of Europe. In the initiative „New skills for new workplaces" it is stressed that it is necessary to create more effective education and study policy and modernize the labour market by using flexible policy of safety (Komisijas paziņojums..., 2008).

The level of registered unemployment continues decreasing until 11.0% from the economically active inhabitants at the end of September, 2012, however, it is a little bit slower than in the related period of the previous year. The number of the unemployed (108.3 thousand) registered by the Employment

Provision State Agency is by now the lowest during the last 3.5 years, and it is a couple of thousands less than at the beginning of 1999, when the crisis of Russia was followed by a wave of redundancies (Ziņojums par Latvijas..., 2012).

Table 1

The employment indicators in the Baltic States (age 15 – 64) in 2011 %

	Men	Women	Total
Latvia	62.9	60.8	61.8
Lithuania	60.9	60.5	60.7
Estonia	67.2	62.7	64.9

Source: Designed *by the author, basing on the data of Central Statistical Bureau of Latvia* (Centrālās statistikas..., 2011, Table NBG43).

"Eurostat" has confirmed again that the increase of employment in Latvia is one of the most rapid ones in the European Union (EU). For instance, in the 2nd quarter of 2012 in the pace of yearly increase of employment Latvia was in the 2nd place in the EU – right after Estonia. As regards the increase of employment, Latvia was in the leader position already in 2011. The number of newly-registered unemployed people – an indicator which would most effectively show the decline of the situation in the labour market, is still constant and in adequately low level (in September – 8.2 thousand, similar to the level of 2005, as well as the middle of 2008) (Informatīvais ziņojums..., 2012).

The proportion of the registered unemployed people who find permanent job in a month's time, continues increasing (in the middle of 2012 the 12-month sliding average value of this indicator reached 4%, which is close to the indicator of 2005) (Ziņojums par Latvijas..., 2012).

Such tendencies give evidence about a gradual recovery of the labour market and all the time increasing opportunities to find job. This year the level of registered unemployment will not be yet written with a one-digit number. It is connected with the „amendment in the census of population" (the number of the registered unemployed is divided by a smaller number of the economically active inhabitants), introduced in April, 2012, which increased this indicator by 1.6 per cent points. Yet , the decrease of unemployment will become more rapid and during 2013 it will most likely reach a one-digit number (Informatīvais ziņojums..., 2012).

The economical consequences and peculiarities of a lasting crisis are marked by the fact that the effect of the crisis remains for a long time after its cause has been eliminated. The crisis might be over, but the consequences of the crisis – the lasting unemployment – is the heaviest heritage of the crisis. To overcome it requires lasting effort and understanding of the whole society, as well as big investment in the human resources, the improvement of its qualification and education.

In 2012 the problem of unemployment has become of a primary importance, which means that the unemployment is lasting and chronic. The labour market policy acts as a safety net, as the programme of social work and the educational courses for the unemployed are an essential source of income (Ziņojums par Latvijas..., 2012). Education is the most essential way for reducing the risks of inequality. The research of the scientific research journalistic centre «Re:Baltica» about the inequality in the society of Latvia confirms that Latvia has one of the highest income inequalities between the wealthier and the poorer part of the society among the European Union member states (Baltijas pētnieciskās..., 2012).

The system of education of Latvia, economic and legal infrastructure have to focus on the development of such personal qualities as self-confidence, readiness to make decisions and take care of oneself and the people around, focusing on one's own competitiveness and success in the career. The diversification of the elements of motivation in the society has to be promoted, so that monetary motivation would be just one of the elements of the system of motivation (Informatīvais ziņojums par..., 2012).

Human resources have to be considered the most important resource in order to achieve the determined aim. Although the quality and availability of the human resources has been traditionally stressed, the rapid scientifically technical progress, demographic problems and the slow reforms of the system of education threaten a sustainable development. The most important trends of the development of human resources are in the areas of the quality of labour force, and especially education, motivation and demography (Informatīvais ziņojums par..., 2012).

Table 2

The proportion of the job seekers (age 15 – 74) in 2011 %

	Men	Women	Total
Latvia	17.6	13.1	15.4
Lithuania	17.8	13.0	15.4
Estonia	13.1	11.8	12.5

Source: Designed *by the author, basing on the data of Central Statistical Bureau of Latvia* (Centrālās statistikas..., 2011, Table NBG43).

Conclusions

By studying different theories of motivation the author concludes that there is not such an integrated theory which would comprise completely all factors, processes, results, which are connected with motivation. Some theoretical approaches root in the individual's inner factors, for example, in the cognitive and dispositional approach.

The most important elements of motivation for improving the skills of the unemployed are self-actualization, metamotivation. Self-actualization means to spread out, expand, develop, become autonomous, express oneself, become mature and competent. Metamotivation refers to behaviour which is caused by the needs and values of development.

According to the analysis of the theories of motivation, the following rules of motivation for increasing the intensity of the motivation of achievements are distinguished: the main aim has to be put forward; everything started has to be finished; people with similar interests have to be contacted. Mutual support is very stimulating; how to learn has to be learned; obtaining the knowledge is a constant process of self-improvement; one's own natural skills have to be balanced with motivating interests; the natural skills create motivation, motivation creates perseverance, and perseverance determines the achievement of the aims which have been put forward; things which can inspire have to be found out; risks have to be taken; only by taking risks it is possible to gain success and achieve important goals.

In the basis of motivation there are needs of two sorts – a need for achievements and a need for avoiding failures. Predictions about the possibility and usefulness of the results influence the level of intensity of the motivation of achievements. The advancement towards the aim is greatly influenced by the individual peculiarities of the individual. They can promote or act as an obstacle to the motive of achieving success. The socio-economic situation, life in the city or the countryside and other factors crucially influence the decisions, expectations and behaviour of an adult person. These factors have to be taken into consideration when motivating the acquirement of the professional skills of the unemployed person. The labour market has a demand for employees who would have the necessary skills for working with modern and new technologies, determine the strategy of their professional growth, organize the process of their self-examination and concentrate on the aim.

In the adulthood the main way of activity is work which leaves a developmental influence on the personality, together with such factors as the age and education. To provide work for the whole lifetime, in the acquirement of the professional competence the teaching and learning process of the unemployed has to be purposefully organized, the values, included in its content – the knowledge and the skills become the benefit of the unemployed in such a way improving the motivation of the unemployed for developing their career. Creating the policy of labour market, such important aspects

as bringing the system of education near the demands of the labour market by observing the changes in the work demands in particular professions in the future, by developing the system of lifelong education, have to be taken into consideration. The solution for the unemployed – the development of self-motivation, the improvement of qualification, better results of work.

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Education for getting competence

EDUCATIONAL INSTITUTIONS' LEADERS COMPETENCES

Inga Andersone Mg. paed., Mg. MPA
Institute of Education and Home Economics, Latvia University of Agriculture, Latvia
inga.andersone@llu.lv

Abstract: In the fast changeable conditions, the education becomes an intellectual product, which meaning and quality changes in order to comply completely with needs of society and floating guidelines of the labour market. We have to acquire knowledge, skills and competences in order to be able to accommodate ourselves to requirements of the labour market. In educational environment the problem is topical not only for teachers but also for leaders and deputies of educational institutions, who are responsible for development of competences not only on their private and staff's level but also on level of the educational institution itself, which will improve the motivation of educational institution's employees and students to acquire new knowledge, skills and competences. We can say that administrative duties of educational institution's leader embrace multi-layered and essential field of responsibility. Nowadays, there have been made different studies on work of educational institution's leader, as well as there have been published different recommendations about professional management of an organisation and described teachers' competences, but there have been only few studies on competences of educational institutions' leaders. This article's goal is to perform a theoretical research and practically clarify the competences of educational institutions' leaders. In order to clarify these competences, ten respondents have been interviewed with help of a structural interview in this research – five principals of comprehensive schools and interest education institutions, as well as five principal's deputies.

Keywords: competence, concept of the competence, model of the competence, level of the competence, competences of the leader of an educational institution.

Introduction

Competence is an important component of educational, economical, political and even human resources' directing; therefore nowadays the concept of competence is described variously in different scopes, but the definition of the term is quite wide and varied. In the literature and studies there is still no unambiguous aspect about the fact, how we should use the word "competence": the term is used both in singular and plural. The statement No.84 from 29.09.2009 of the Terminology Commission of the Latvian Academy of Science (LAS) (Lēmums Nr.84., 2009) is following: in educational branch the term "competence" has to be used in singular form, but in this article it will be used in correspondence with original – in plural and singular depending on the fact, how the term is used in literature source.

In the education "competence is described as "necessary knowledge, professional experience, comprehension in a particular area or question, as well as skills to use this knowledge and experience in a particular action. The competence of a person (employee) is evaluated by bystanders, collaboration partners and the society. Competence (also expertness): cognizance, eligibility (in any matter), totality of powers; area, whereof has been entitled the responsibility by taking into account person's education, skills, knowledge, as well as experience in the particular area" (Pedagoģijas terminu... 2000, 83). The explanation by V. Skujiņa embraces the most important features of the competence – necessary knowledge, experience, comprehension and skill to use the existing in a particular action. The competence is like totality of powers and responsibility, which has an effect on the surrounding and which can be evaluated by the society. In the Academic Terms' Database (Akadēmiskā terminu…, 2012) the competence is explained as "expertness, experience, totality of powers, legal form, erudition, special knowledge, authority, abilities, qualities, prosperity, affluence, management and keeping." Here, even in an extended explanation, the competence is defined as "legal feature (e.g., legally permitted age), competence, powers or ability. It's a mental ability to realize person's own action's nature and consequences. In instructions and indications it is a specific task or activities that have to be made; area of cognition." The competence is characterized also like "totality of factors that characterize a personality, which is necessary for a good, successful performance of

working tasks." In its turn in the publication "Human Resources, Staff Management, Working Environment" (Cilvēkresursi, personālvadība…, 2012) competences are "knowledge, experience, abilities and skills in a particular field." D.Webster defines competence as "sufficiently capable or qualified, appropriate" (Webster, 1992, 452).

In the Dictionary of Competences (Kompetenču vārdnīca…, 2011) it is mentioned that competences help to describe and explain, how (with what kind of skills and by acting in what manner) a work has to be done. Competences are like an instrument, which in simple actions' descriptions explains to the employees, what kind of activity others await from them."

G. Dāvidsone thinks that "under the term "competence" quite different phenomena are still marked and realized. The concept of the competence is used in a meaning, which describes an individual by embracing individual skills and abilities, as well as in a meaning of an organisation by describing a totality of knowledge and skills that are common in this organisation" (Dāvidsone, 2008, 154). G. Dāvidsone also stresses that "every person has a lot of different competences and even more "sprouts" of potential competences. Every competence usually consists of totality of several knowledge, skills, motivation, attitude and personality's nature's qualities, that show up in person's way of thinking and behaviour." On the basis of conclusions made by Sveiby, G. Dāvidsone "fortifies the competence through five correlative and mutually characterizing elements: **knowledge**, a free management of various facts (knowledge is basically obtained in a way of receiving the information and acquiring the education); **skills**, which are basically acquired in a way of experiments and practicing (an employee's know-how about how to act in particular conditions); **experience**, which basically is obtained by learning from our successes and failures in the past; **values and attitudes** – individual assumptions about the fact, what is right and what is wrong; it is an original filter of all information, which reaches an individual's focus; **social bo nds**, individual's relationships with other people, which have developed on the basis of family, job relationships and other bonds." (Dāvidsone, 2008, 154-156).

L. Spensers and S. Spensere explain, that „concept of the competence embraces the following: characteristic marks of a personality and person's motives, attitude and values, conception of this person, as well as skills and knowledge that are obtained during person's life." (Spencer, Spencer, 1993, 24). L. Spensers and S. Spensere stress an essential conclusion in their researchable problem about the competence of educational institutions' leaders: "Competence is a deep and permanent part of person's personality, and on its basis we are able to predict person's behaviour in different situations and positions. Causational relationships mean that the competence causes or predicts behaviour and working performance." (Spensers, Spensere, 2011, 21).

The versatile definition, aspects and nuances of competence develop a tendency towards competence's grouping, its arranging in different structures, as well as creation of "approaches that are based on competences" and combining competences into models. The approach of the competence is typical and popular in the whole world, in all fields of activity and levels of education.

In her research article's author pays attention to competences of educational institutions' leaders and their versatility, because leaders of educational institutions daily face different questions, for which solution they require different competences. In Latvia, competences of educational institutions' leaders are defined by Decree No.425 of the Ministry of Education and Science (from October 16, 2009), as well as by **job description of educational institution's leader and deputy**. Competences that are required for realization of educational institution's leader's working responsibilities are listed together with abilities, and they are as following: knowledge of regulatory legislation of the educational branch; knowledge of teaching and educational work's content, as well as knowledge of didactics of a subject; comprehension about development's features of students' age range and regularities of interaction's psychology; readiness to study constantly according to latest pedagogical and psychological cognitions and topicalities in education in the united European education space; ability to make decisions; ability to plan and organize own and students' work according to goal and tasks of the educational institution; psychological stability and high communication culture; ability to create businesslike collaboration with employees of the educational institution, its students, their parents and employees of other institutions; ability to work in a team, ability to respond to needs of the students; ability to motivate students towards work; self-assessment skills; national language skills at

the highest level; skills to work with office equipment and information technologies. (Pedagoga darba pienākumu..., 2009, 2)

The mentioned choice of competences is quite wide, and it embraces aspects of different competences, which are linked to leader's personal, professional and social activity. Nowadays leaders of educational institutions daily have to face competences, which are not defined in their working responsibilities. In the same way it is substantially, whether the leader of educational institution has a working experience in administrative work of two, five, ten or even more years. In addition to idea expressed before, R. M. Ennis has described the variety of competences on the basis of conclusions by different authors in a quite interesting way. He has created a model of competence as a system of different levels, in which lower level competences serve as keystones for upper levels (Figure 1.).

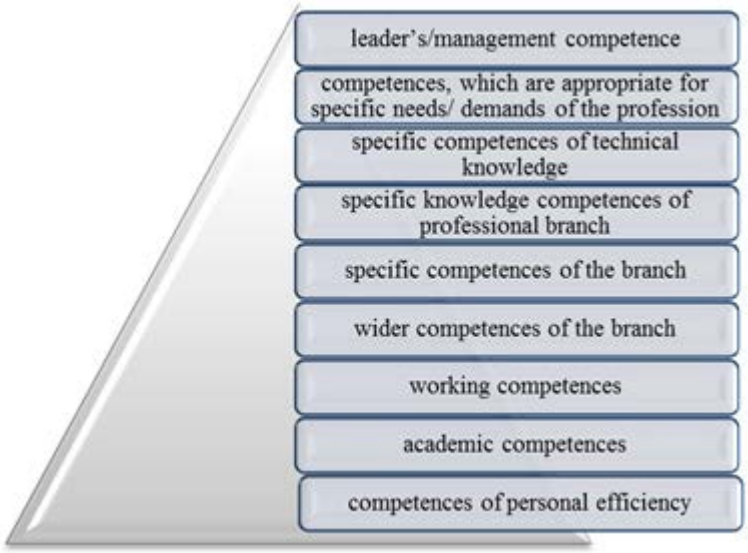

Figure 1. Model of different level of competences (Ennis, 2008).

In the first level are combined competences of personal efficiency: communication skills between persons, honesty, professionalism, initiative, focus, reliability, and readiness to study. **The second level** embraces academic competences: reading, writing, calculations, communication skills, listening and talking, knowledge and skills in latest technologies, critical and analytical thinking, active studying, and knowledge in information technologies. In **the third level** there are working competences: collaboration skills, adopting skills and flexibility, concentration on clients, creative thinking, concentration on problems, ability to make decisions, skills of tools and technologies' management, computer using skills, planning and coordinating skills, control, monitoring and expertise skills, as well as business basics. In **the fourth level** there are wider competences of the branch, which embrace knowledge and technical skills of the branch. In **the fifth level** there are specific competences of the branch: particular technical knowledge. In **the sixth level** there are combined specific knowledge competences of professional branch: they are linked to the ability to distinguish interconnection, as well as to systemize and classify knowledge of the corresponding branch. In **the seventh level** there are placed specific competences of technical knowledge. In **the eighth level** there are competences, which are appropriate for specific needs/ demands of the profession. In **the ninth level** there are combined leader's/management competences: skills of personnel selection, information literacy, delegation of responsibilities, diagramming, work monitoring, entrepreneurship, support, motivation and inspiration, development encouraging and mentoring, strategic development planning and process, budget creation and evaluation, conflict resolution, time planning, as well as development of organisation's evolution's vision and control options (Ennis, 2008). It is relevant that at the top, in the ninth level, R. M. Ennis places the management competence. This prompts the question, what competencies must have the leader, before he gets this position. By studying the competences of educational institutions' leaders, the author also agrees with this cognition, because, while performing the administrative responsibilities, it is crucial for leaders of educational institutions to have prior experience, which is linked to specific knowledge in the professional branch, as well as to diverse personal competences.

Methodology

Since the administration of educational institutions is made from leaders and deputies of an educational institution, and in order to clarify competences of educational institutions' leaders, five principals of comprehensive schools and interest education institutions, as well as five principal's deputies (deputies in educational work, deputies for IT issues, etc. Among the respondents there were also leaders of methodology associations of Jelgava city) have been interviewed with help of a structural interview in this research. Following educational institutions took part in the research: administration of Jelgava State Gymnasium, administration of Jelgava Spīdola Gymnasium, administration of Jelgava Secondary School No.4, administration of Jelgava Elementary School No.4, administration of Children and Youth Centre "Junda", as well as administration of Salgale Music and Art School.

The goal of the research was to clarify competences of educational institutions' leaders.

A structural interview is a method of qualitative research. A. Kroplijs and M. Raščevska (2004) show that a structured interview is an exchange between highly structured questions and responses, in which the researcher uses specially prepared questions and awaits to receive specific responses. Questions of that kind usually are obtained on the basis of existing theories of particular branches, or even from results of prior or pilot researches, or from researcher's anticipation or intuition, or they simply are linked to specific interests of the researcher in a specific field. Questions often are read loudly from a protocol or record sheet, by using the same question formulation and query order for all the respondents, if only the respondents haven't spontaneously responded any of questions (it means – before the researcher has asked the particular question). Sometimes questions in structured interviews are getting opened only at the end of an interview (it means, the respondents give their responses in a free manner), but another time the interviewer can offer alternatives for the answers, from which the respondents can choose the suitable respond for them. Not always the statements of the respondents have to be written down literary; only specific keywords or phrases can be written down (Kroplijs, Raščevska, 2004; Kristapsone, 2008). Authors think that with interviews of that kind have their own advantages. They create prior structured information and as a result it is easier to analyse it and it also takes much less time. A. Bryman defines a structured interview as an interview, which is based on defined questions and their query, as well as fixed transitional phrases. In order to use such interviewing method, researchers shall have assumptions, what they would like to clarify or discover with help of a structured interview. The interview affects only a particular aspect or theme (Bryman, 2004).

The research has been performed during March 2012. General group of the research is made by 10 representatives of educational institutions' administrations – 5 leaders of educational institutions, and 5 deputies.

The interviews have been performed at respondents' working places by prior coordination of interviewing time. Interviewing of some respondents took place after their working hours, in order not to disturb their direct working duties. Interviews that took place during respondents' working hours sometimes were disturbed, because the respondents had to settle unexpected working issues. In general, all interviews have passed in peaceful and informal atmosphere, in a favourable environment, which has promoted the respondents to pass their own opinions freely. One interview has lasted from 35 minutes up to one hour and ten minutes. All interviews have been recorder on the Dictaphone, but interviews' transcripts were written down after interviews. By choosing the respondents, research's author has made her selection in such a way, so that the obtained results shall comply with existing situation to the utmost and that the obtained information shall be complete and believable. Gender and age of the respondents was not a decisive factor, because interview's questions are related to competence of educational institutions' leaders and their deputies.

Results and discussion

Structured interview consists from twelve questions, but in the research the author uses only four questions in order to reflect the competences of educational institutions' leaders.

Questions of the structured interview are concentrated on research of respondents' general competences, consciousness and progression of competences of the educational institution, as well as on clarification of personal competences of educational institutions' leaders and deputies.

By summarizing respondents' answers on the question, ***how long do the principals and their deputies perform their administrative duties***, all the respondents can be divided in following groups – duties of leader's position have been performed from 2.5 to 19 years. Two leaders, who have a 17 and a 19-year-long experience in administrative position, have been deputies of principals before; three leaders didn't have such experience at all – they have worked as teachers before. The working experience of leader's deputies in an administrative position ranges from one to eleven years. Common duration of respondents' experience in administrative position is from one to 19 years.

In question about the fact, ***which three most important competences, according to respondents, must have the leader of the educational institution***, as first and most important competence was mentioned the "***management competence***". This competence was mentioned by nine respondents, and they have underlined that "*the collective has to feel the leader, it has to see certainty and planning in that field, which is lead by the leader (if it is a principal's deputy), but in his/ her turn the leader has to lead the collective*". Leaders have pointed out that this competence is the most difficult to acquire. The next most frequently mentioned competence was "***social competence***". The respondents have mentioned this kind of competence, because they "*daily have to create contact with students, collective, and parents. They also have to deal with many problems together with management of Education Administration and representatives of the City Council.*" The next important competence, according to employees of the educational institutions, is the "***competence of strategic thinking***". „*I think that each leader's work has to be based on the strategy, which is linked to thinking. The leader has to evaluate resources and think, how to improve them in the future.*" "*Our work has to be strategically thought-out, even when we're acquiring the necessary things, technologies; we have to think that they must have sustainability. We should not acquire things for concrete purposes, because then we won't have any other application for them. In the same way we are planning the reparation works, because it is necessary for our institution – it has four buildings and a territory, and they are sufficiently resource-intensive.*" "*It is one of the most important competences, because we, as leaders, are planning the strategy of educational institution, and then we are taking part in development of common educational strategy for Jelgava city. The Education Administration invites schools' leaders and their deputies to these meetings and develops educational institutions' visions for the planned strategic period.*" As the next competence, which was mentioned by three of respondents and which perfects the previous competence, is "***competence of systematic and regular planning***." "*A principal shall have this competence, and only then he can delegate his duties to his deputies*"; "*if a principal has a strongly expressed planning competence, he plans and delegates duties, and then the work of deputies and even the collective's work is easier, because everybody knows, what everybody expects from him/ her*"; "*the planning alone is not enough; you also must be able to substantiate your plan in order to convince that this is the most suitable solution, but this problem is frequently linked to dialogues with municipality, and with sponsors, too.*" As next there were also mentioned "***decision-making competences***", "***problem solving competences***", and even "***ability to inspire***". Every of previously mentioned competences have been mentioned by two respondents. They have stated that these competences are important for leader of an educational institution, too. "*There are such decisions, in which solving you have to involve deputies, collective, parents, and even municipality, and this way a principal just must have such competence. He also has to evaluate strategically, which decisions he can make alone, but which – only in a collective.*" "*It is possible that there is a particular problem, which must not be solved by a principal, because it can be solved by deputies. The principal must to differentiate, which problems must be solved by subordinates, and which problems – by the principal.*" As previously mentioned, two of the respondents have pointed out that "*the principal has to be an inspirer; he must be able to substantiate his/ her ideas and fascinate with them the entire collective.*" "*A principal shall inspire, motivate students and the collective, because it is important not only in meetings and different arrangements, but also in daily situations*"; "*he/ she must have the ability to inspire for common ideas by highlighting and developing the abilities of an individual, in order teachers and students can feel themselves evaluated.*" One of the respondents has expressed that leaders of educational institutions must have "***competence of changes***", and another one respondent

has mentioned the "***competence of an organiser***". Author of the research thinks that these competences have been pointed out only by two respondents, because, probably, the others have merged these competences with others, e.g., in management competence or competence of strategic thinking.

In question, ***which competences, according to respondents, are most important for the educational institution's leader's deputy***, different competences have been named, which have been divided by the author in six groups. Eight respondents have underlined the fact that educational institution's leader's deputy must have the "***methodological competence***". In this competence are embraced such aspects as: *"knowledge of the methodology and management of the pedagogical process"*, *"clearly developed methodological principles for working organisation of his/ her own work and work of his/ her colleagues"*, *"clear evaluation and analysing methodology of teachers' work"* – probably we can call it an "*analysing competence*", but, in principle, it also may be a "*methodological competence*". As next, eight respondents have mentioned "***leader's competence***". Without doubt, it is "*management, as well as knowledge, planning, organising, and revise of one's field*; *organiser's skills in a strategic management*". "*It is knowledge and management of tasks and processes, a skill to plan and organise work, to lead and motivate one's employees to achieve qualitative working process and results*." Six respondents named "***competence of interpersonal efficiency and relationships***." This competence, according to author, has something in common with "***social competence***", which was mentioned as second important competence for the leaders. Leader's deputy "*must have a high communication culture and has to take into consideration standards of professional ethics*", "*must have communication skills, good and efficient communication, as well as social competence*", "*has to create positive interpersonal relationships between colleagues, students, principal and parents.*" "*Deputy must have an ability to create and lead communication in the collective; exchange of opinions, experience and information for a fruitful achievement of goals. These abilities are topical at conducting meetings, by evaluation of students' assessments, as well as in communication between colleagues during meetings of methodological associations.*" The next competence is "***organisation's understanding competence***", which was also mentioned by six respondents. "*A deputy shall have a skill to conform to an organisation, as well as to accept organisation's values*", "*a skill to manage organisation's social environment, to have an influence on persons' actions and work results, skill to collaborate, to work and direct the team, to prevent or reduce conflict situations*." "*This competence has to be supplemented with a remark that principal's deputy shall know skills of a team work, has to understand common goals, has to develop tasks for achievement of these goals, therefore he/ she also must have a high sense of responsibility about working results*." Five of respondents have mentioned the "***self-guidance competence***", connecting it to persistence and intellectual competence, because "*an intellect is the one that encourages self-guidance. If the deputy will successfully organize himself/ herself, it will also reflect on the working collective. It is also a desire to learn individually, time planning and other similar things*."

During interviews, the author has asked the respondents to name ***three competences, which, as for performers of administrative work, are typical for respondents themselves***. Responses, obtained from respondents, formed a unique result. The respondents have mentioned following competences: ***strategic thinking and planning, communication, leader's competence, social, action, conceptual vision's competence, organising, informative, self-guidance, ethical and environment-evaluating competence***. The author has combined competences, which were mentioned in respondents' responses, in five groups, therefore it can be concluded that leaders of educational institutions have quite similar point of view on their personal competences. For many of respondents it was difficult to express their opinion: "*It is hard to define my own competences briefly; it seems that they are quite similar, e.g., interaction, communication, contact and social skills – I would merge them*"; "*It is good that I should not name these competences in order of importance, because in that case it would be one big management's competence*"; "*Thinking of this question made me look in my job description today*". Seven of ten respondents have mentioned "***competence of strategic thinking and planning***", this way the author comes to conclusion that this is a competence, which is the most typical for leaders of educational institutions. Six respondents have mentioned the "***communication competence***", when they talked about competences that are typical for them. This competence is considered by respondents as important, because "*nowadays the big art is to listen, to hear and to talk with*

certainty"; "*competence of communication and collaboration is one of the most typical for me, and thanks to it we have achieved so much in our school*". "*Communicative skills and communication is an important thing for solving of strategic important and personal issues in the collective*". Six of respondents have mentioned "***leader's competence***". As this competence is not analysed separately for leaders of educational institutions and their deputies, in the interviews all leaders and one deputy have mentioned the fact that they posses this competence. Four respondents noted the "***social competence***", because "*it has an important role by working in a team, but you also must have accommodation skills*". During the structured interview, respondents have also mentioned such for them typical competences as ***intellectual competence***, ***organising competence***, etc. (Andersone, 2012).

Figure 2. Competences of educational institutions' leaders (Andersone, 2012,75).

On the basis of respondents' responses, obtained during structured interview, the author has created a figure (Figure 2), which embraces competences of educational institutions' leaders. Competences, which are typical for leaders of educational institutions, are different and diverse. It was quite difficult for respondents to talk about their own competences; they found it easier to name some general competences or competences of their colleagues. The respondents have also mentioned that there are such competences, which become urgent in a specific situation or time, and vice versa. The author thinks that mentioned competences of educational institutions' leaders can be defined as point of reference and to formulate the priorities of competences' development in the future. It means that in one year leaders of educational institutions will require the same competences, but only in new quality and development stage, because it is a professional evolution – it does not start and end, but is constantly improved.

Conclusions

Competence is a totality of necessary knowledge, skills, personality's characteristics and attitudes, abilities, experience, comprehension and expertness, which describe employee's thinking and behaviour or action in typical working situations in a particular field, which can be achieved only in action – by learning or working.

The results of a structured interview show that the most important competences of educational institutions' leaders for performing the administrative work are:

- Management competence (ability to plan, organise, and motivate employees to perform qualitative working process and to achieve qualitative results; ability to delegate responsibilities and to control the results);

- Competence of strategic thinking (ability to evaluate outer and inner environment, existing achievements, as well as consciousness of future needs by establishing the possible development trends, as well as to evaluate future visions);
- Communication skills (ability to create and manage communication in collective, exchange of opinions, experience, and information for fruitful achievement of goals);
- Methodological competence (ability to manage working process of an educational institution for securing qualitative results of the work, organising and planning abilities, presentation skills);
- Intellectual competence (awareness, ability to get new knowledge, abilities and skills, as well as ability to use them practically, ability to set the priorities, readiness for changes).

On the basis of study's results it can be concluded that for performance of administrative duties leaders of educational institutions posses following competences: competence of strategic thinking and planning, communication, leader's competence, social competence, competence of action, competence of conceptual vision, organising, informative, self-guidance competence, ethical and environment-evaluating competence.

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CITIZENSHIP EDUCATION IN THE MATHEMATICS CURRICULUM

Rudīte Andersone[1], Dr.paed.; **Ineta Helmane**[2], Dr.paed.
University of Latvia, Riga Teacher Training and Educational Management Academy[2], Latvia
rudite.andersone@lu.lv[1], ineta.helmane@gmail.com[2]

Abstract: An essential feature of the 21st century is the rapid globalization processes of the society. They exercise a vital impact on building education curriculum and their implementation. School leavers must perceive the world in unity and entirety, they must be able to analyse not only separate phenomena and processes, but also in their interrelation and entirety. The accumulation of information in the society causes also changes in the content and structure of school curriculum. Citizenship education is a significant constituent part of the curriculum of school subject. Citizenship education include the nature and practices of participation in democracy, the duties, responsibilities and right of individuals as citizens; and the value to individuals and society of community activity. Preparing students for citizenship involves developing relevant knowledge and understanding as well as encouraging the formation of positive attitudes toward being a citizen. Mathematics curriculum should provide pupils with the basic skills and knowledge that will help them to make a worthwhile contribution to society and its positive development. The article reflects the mathematics curriculum theoretical analysis carried out by using criteria: citizenship knowledge, citizenship skills, citizenship values and attitudes. Selected criteria are characterized by the citizenship education in mathematics curriculum.

Keywords: curriculum, mathematics, citizenship education.

Introduction

Rapid globalization processes are going on in our contemporary society, which essentially influence not only the volume of knowledge, ways of its acquisition, but also each person's feeling of belonging. It is important not to lose one's civic consciousness. That is the reason why citizenship education is becoming more and more important in our contemporary society. It occupies an essential place in one's lifelong education. The prominent Latvian pedagogue J.Greste (Greste, 1923) once said that life is a continuous movement. We develop in quite different conditions than our fathers and forefathers. The results are different, too. But the uniting tie is the consciousness of belonging to one's state, to a definite part of the society, one's relations to the state, the existing social norms, laws, etc. It can be promoted in different ways – by introducing new school subjects, by applying integrative approach to working out differing subject curriculum and by including thematic issues of citizenship education in them. As a result of targeted educational process, there develops an attitude of civic significance and finds its realization in life. It is an essentially significant attitude of a citizen of the state towards the duties and rights determined by the state. Many educational means serve this aim – the content of learning, the teaching /learning methods and education/self-education methods, educational materials, curriculum.

In Latvia the aim of education is defined in the education conception of Latvia (1995). It says that the aim of education in Latvia is to give each person an opportunity to develop into an intellectually and physically developed, free, responsible, creative personality of culture. In order to be really free and responsible, creative, one has to comprehend the mechanisms of the activities of the society and the regularities of the development of relations. In other words, each person needs citizenship education. Paragraph 2 of the Education Law determines that depending on the age and the needs of the learner each person is guaranteed: 1) to acquire knowledge and skills in the spheres of humanitarian, social, natural and technical sciences; 2) to acquire knowledge, skills and experience of attitudes, in order to participate in the life of the society and the state; 3) the moral, aesthetic, intellectual and physical development, thus favoring the development of erudite, skilful and well-bread personalities. (Izglītības likums, 1998)

J.Goodlad marks that schools are significant establishments of the state, the direct task of which is to inculcate the culture of democracy in the young people. (Goodlad, 1990). Citizenship education is

considered to be the basic task of education. However, the ways of including it in the curriculum differ from country to country and in the degrees of education, as it has been stated in the research of European Council of 2005 "Citizenship education in schools of Europe." (Eurydice, 2005)

The latest investigations in Europe, as K.L. Hahn acknowledges, show interest in the evaluation of the curriculum in the implementation of citizenship education, in the development of the learner's personality in a multicultural society. Many researchers centre their attention on the development of co-partnership relations, demonstration of one's position, the development of competence. (Hahn, 2010)

Methodology

Therefore there was carried out research, analyzing mathematics curriculum, stating whether at all or in what way there are included issues of citizenship education.

Notion of citizenship education

Citizenship education is closely connected with citizenship upbringing. Citizenship upbringing is a purposeful process, in which under the guidance of the teacher, develops and finds its realization a personally significant and for the citizen of the state essential attitude to the duties and rights determined by the laws of the corresponding state.

Citizenship education in its essence is comprehension of one's rights and duties, the relations between the individual and the collective, the interaction of the state power and the citizens. It is knowledge of how the state functions and how each of us can participate in the improvement of the life quality of one's own and one's peers. (Izglītības attīstības centrs, 2008). Citizenship education is also explained as education, the aim of which is to give knowledge, skills and habits, as well as experience, needed for man's integration in civil society and life, successful and of full value. (Pilsoniskās sabiedrības stiprināšanas programma 2008 – 2012, 2008).

Citizenship education is not only passing on the values and attitudes of the society but also their transformation, alteration corresponding to the political and ideological aims. (Sandström Kjellin & Stier, 2008). Whereas J. A. Students has said that school gives not only knowledge, but teaches one to get accustomed to the laws of society, discipline, which are very much needed in one's later life. (Students, 1998). Citizenship education helps each learner comprehend one's duties and rights in society, to evaluate critically the phenomena and the processes going on, to express and defend one's point of view. J. Delors admits that citizenship education is a complicated enough process, which refers to both the comprehension of the development of values and learning of how to participate in the social life of society. He also draws attention to making use of lifelong education in order to develop an active civil society, in which everyone does one's duties and treats the others with solidarity. (Delors, 2001).

Citizenship education can be viewed from three aspects,

Firstly, it is knowledge about society.

Secondly, it is skills to develop relations with other people, to develop a safe and supporting environment, to observe the existing regulations and norms.

Thirdly, one's attitude to one's duties and rights.

I.Irbite draws the conclusion on the basis of the investigation of the Commission of strategic analysis of the President of Latvia State that there are at least three different ways of realizing citizenship education of full value at school:

- direct teaching/learning process during lessons,
- out-of-class activities, among them the activities and processes within the frame of different projects,
- common civic culture of the school (Irbīte, 2008).

The borders among these possibilities are not strictly divided. In the direct teaching/learning process the component of citizenship education is present in almost all subjects, both as content dimension in such subjects as politics and rights, social sciences, history, literature, biology, geography, and also subjects for paving the way to communication and mutual attitude between teachers and learners. In the common culture of the school it is the practice of decision making and solution of conflicts, a reciprocal communication style and intensity of the administration, the learner, the teacher, the parents and wider society, the values and priorities of the school community.

Exists a challenge that could contribute to a more holistic understanding of how to achieve citizenship in modern-day Europe:

- diversity – of living in increasingly socially and culturally diverse communities and societies;
- location – of the nation state no longer being the "traditional location" of citizenship and the possibility of other locations within and across countries, including notions of "European", "international", "transnational" or "cosmopolitan" citizenship;
- social rights – of changes in the social dimension of citizenship brought about by the impact of an increasingly global economy;
- participation – of engagement and participation in democratic society at local, national and international levels (Kerr, 2003; Jenson, Phillips, 1996).

Citizenship education in mathematics curriculum

Mathematics curriculum in its essence is planning of the teaching/learning process and the content of learning. That is why the aims of the curricula are closely connected with the values of the society. The aims of the curricula of today in Latvia envisage the development of the learners' responsible attitude to the surrounding world, the development of a personality of culture, motivation to lifelong education, etc. (Andersone, 2007)

Mathematics is one of the subjects, which promotes the learners' independent and critically analytical thinking, develops one's skills of substantiating one's standpoint. The aim of mathematics curriculum in the basic education is to develop the learners' comprehension of mathematical methods and to develop their skills in order to apply them in the cognition of the world, in other school subjects and in their manifold activities. Whereas in general secondary education the aim of the mathematics curriculum is to improve the skills of applying mathematical methods in the cognition of the world and in their manifold activities when deepening their comprehension of the role of mathematical models in the description of the processes in nature and the society and when developing their mathematical reasoning skills. (VISC, 2011). The various activities mentioned before in both the aims contain also components of citizenship education. The schoolchildren learn to use their knowledge and mathematical models in their everyday activities, thus realizing their civic duties and rights.

Learning mathematics helps the learners comprehend and solve in their life activities issues of rather great significance in different contexts of national economy and social life: in building, economics, trade, transport, tourism, etc. In mathematics the learners investigate, ask questions, express presumptions, check them, clarify different questions, for example, the growth of the population, the distribution of limited resources, ecology, environment protection, health, risks and probabilities, etc. In this way the integration of mathematics and citizenship education expresses itself.

Results and discussion

The mathematics learning programs of forms 1 to 6 of basic education include three content blocks:

- composition of mathematical sets;
- application of mathematics in the analysis of the processes of nature and society;
- structuring mathematical models and investigation with the help of methods typical of mathematics.

Whereas the mathematics learning programs of forms 7 to 9 of basic education and in forms 10 to 12 of general secondary education include three content blocks:

- mathematical models;
- research activities;

- the aspects of mathematics of the interaction of man, the society and the environment.

The planned results of the last content blocks also include the development of skills referring to citizenship education.

There were chosen three components with corresponding indicators as criteria in the analysis of mathematics curriculum civic knowledge, skills, civic values and attitudes. (Table 1) (Andersone, Helmane, 2012)

Table 1

Citizenship education criteria and indicators for mathematics curriculum

Criteria	Indicator	Mathematics curriculum for each class											
		1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
Citizenship knowledge	theory of human rights and democracy												
	political and social, civic institutions												
	cultural and historical diversity												
Citizenship skills	involved in the life of the school and local community									X	X	X	X
	contribute to a safe environment	X	X	X	X	X	X	X	X	X	X	X	X
	opportunity to experiment practically with democratic principles	X	X	X	X	X	X	X	X	X	X	X	X
Citizenshipvalues and attitudes	developing values consistent with a pluralist society												
	learning self-respect and respect for others	X	X	X	X	X	X	X	X	X	X	X	X
	developing capacity to engage with each other	X	X	X	X	X	X	X	X	X	X	X	X

X yes partly/sometimes no

In the development of the civic skills “contribute to a safe environment” and “opportunity to experiment practically with democratic principles” are included in all the curriculums of forms 2 to 12. They find their expression as the application of the knowledge of mathematics, application of models in the solution of practical tasks pertaining environment, economics, studies of practical solutions of the tasks in the form of group work and individual work.

The development of the civic attitude “learning self- respect and respect for others” and “developing capacity to engage with each other” are also included in the mathematics curriculum of all the forms

from 1 to 12. They find their expression in group work, in working out projects, presentation of the results, search of different solutions, etc.

Whereas the civic skill "involved in the life of the school and the local community" are included in the mathematics curriculum of forms 1 to 12, partly their acquisition is also envisaged in the mathematics curriculum of forms 2 to 8, but it cannot be identified in the mathematics curriculum of form 1. There is a logical explanation of it, because it is the period when more attention is paid to the acquisition of the initial mathematical skills and computing. However, taking into consideration that the child's adaptation process in form 1 takes place, it is necessary to make use of all the possibilities to facilitate this process and make it more natural. The content for learning is flexible enough for the teachers to use it purposefully with the aim of active involvement of the learners in the school life. It is one of the possibilities of improving the curriculum of mathematics.

Mathematics curriculum do not contain wide civic knowledge. It is determined by the specificity of the subject. However, mathematics curriculum of forms 3 to 5 and the curriculum of form 12 contain partially civic knowledge of "the theory of human rights and democracy". Whereas the curriculum of form 6 and the curriculum of forms 9 to 12 contain civic knowledge of "cultural and historical diversity". Knowledge about human rights and democracy is included, for example, in the curriculum of form 4 – "comprehend the necessity of the evaluation of criticism concerning one's own and other people's conduct", but in form 12 - "carry out full research work and evaluate one's own skills". Whereas knowledge about cultural and historical diversity is envisaged, for example, in form 9 - "evaluate the importance of geometry in the development of society and science", but in form 6 – "comprehend the national composition of the population of Latvia", in form 11 – "discern that combinatory methods are used in different branches and spheres (in games, coding, completing, geometry, biology, etc.). The acquisition of civic knowledge in mathematics curriculum should be envisaged on a wider scale and in greater number of forms. The content of learning mathematics is appropriate enough.

Conclusions

- Mathematics curriculum comprises the planning of the learning content of mathematics and the results to be achieved. They include not only knowledge and skills in mathematics, but also the knowledge and skills, which each member of the society needs when realizing his civil rights and duties, when demonstrating his civic stand.
- Taking into consideration the specific character of the subject, mathematics curriculum comprises on a wide scale the civic skills of taking care of a safe environment, observing practically the principles of democracy; not to such an extent but quite enough the curriculum envisages skills of participation in the development of the life of the school and the society. However, it is necessary to improve the mathematics curriculum in form 1, by including in it the development of the children's participation in the life of the school, because the potential of the content of mathematics has not been fully made use of.
- In the mathematics curriculum great stress is put on the development of "the skills of cooperation" and the development of "respect for others". It is an important contribution to citizenship education. Only by learning together, working together and respecting one another there can develop a really civic and multicultural society.
- Although the content of learning does not directly comprise civic knowledge, it is partially included there. For example, knowledge of civic rights and democracy in the curriculum of mathematics for forms 3, 4, 5, and 12.

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CROSSROADS: THE IMPORTANCE OF CULTURAL CAPITAL IN THE 21ST CENTURY EDUCATION

Austra Avotiņa Dr. Paed.
University of Latvia, Latvia,
austra.avotina@lu.lv

Abstract: The purpose of the paper is to investigate the relation between the cultural capital and individual's cultural competence in the contemporary information society. General education process plays a crucial role in developing this relation however the importance of the cultural capital is practically underrated. The cultural capital and its accessibility is the most influential factor in the development of the cultural competence. Following the purpose the paper analyses two characterizing aspects of the information society, which also could be stated as two problems. First problem concerns the aspect, how the modern information resources influence the individual's understanding of the importance of the cultural capital in the contemporary society. Second problem looks at the aspect – is the development of the cultural competence topical for the education and contemporary information society in general. The answers to the both problems are determined by and found in the conformity of the education process to the requirements of the contemporary society.

Keywords: lifelong education, cultural competence, cultural capital, information society.

Introduction

The beginning of the 21st century can definitely be described as a new age of electronic information, which consequently requires cardinal structural changes not only in society but also from the authorities and institutions (in this case - educational institutions). The task to fulfil the EU strategic planning educational targets and guiding principles (e.g. The Lisbon Special European Council: Towards a Europe of Innovation and Knowledge, 2000; The Bologna Process – Towards the European Higher Education Area, 1999 – and continuously every two years: 2001 in Prague; 2003 in Berlin; 2005 in Bergen; 2007 in London; 2009 in Leuven; 2010 in Budapest and Vienna and 2012 in Bucharest; EU's overarching programme Strategic framework for education and training 2001 – 2010 and its follow-up from 2011 to 2020 – ET 2020) has triggered a succession of problems for the current education system in Latvia. The latest strategic framework defines four strategic targets:

- making lifelong learning and mobility a reality;
- improving the quality and efficiency of education and training;
- promoting equity, social cohesion and active citizenship;
- enhancing creativity and innovation, including entrepreneurship, at all levels of education and training (Strategic framework…, 2009).

These targets clearly show that education is at the crossroads now. Two roads are clearly visible – a shorter and a longer one. The short road can ensure the professional development opportunities (see first and second strategic target). This road emphasises the advantages of the information resources, ensures the development of skills, which are demanded in the job market and brings in the foreground the demand for a specialist with narrow and specific knowledge. The other road is considerably longer. In order to follow that road, one should accomplish wide spectrum of interdisciplinary studies, mainly humanitarian professional or academic programs. The need for this road is determined by the new age and by everyday life, where everyone should be proficient in almost every science field. Globalisation, integration and social conditions create necessity to be tolerant, broadminded, helpful, socially stable and well prepared for a self-dependent living in a continuously changing environment. This road ensures individual's social development capabilities (third strategic target). The role of the teacher is changing along with the new requirements. Followers of the first road need a leader – gatekeeper, who would ensure effective training, but the followers of the second road need an anthropologist, psychologist and social worker, who would enable the education process. To find a way, how to combine these distinct roles is a task of the contemporary training and education institutions. Theoretically such task might be implemented via the third road, which should ensure the

personal development capabilities of an individual (fourth strategic target). That would be a road of synthesis and integration. It would ensure focused actualisation of the cultural capital according to the requirements of the information society and it would be the most favourable environment for development of the cultural competence. Accordingly, the purpose of this paper is to mark the direction of the third road and to emphasize the importance and interconnection of the cultural capital and the cultural competence of an individual in the development process from the 20th century end information society towards the 21st century's knowledge society.

The keynote for the need of such new road is not only defined by the previously mentioned EU documents, but also other topical recommendations, which systematically forecast high achievements in short terms. For example, two of the five, Latvian National Commission's for UNESCO priorities 2009- 2013 are:

- development of cultural self-confidence, comprehension of the value of knowledge and of favourable cultural environment for the society;
- development of accessible and qualitative information environment, fostering of an active knowledge society in Latvia (UNESCO, 2009, 32).

These priorities confirm the topicality of this research.

Methodology

In order to particularize the context of the main concepts, used in this paper, it is necessary to perform a correlation analysis of their interpretations and contents. One of the concepts, which is very important for this subject is culture. The content of this concept is very broad and the capacity of it nowadays is often misunderstood or biased. For example, in the previously quoted EU commission strategic framework's document, the concept – culture, is used only several times and only in a social context: cultural dialogue, intercultural competence (*Padomes secinājumi...*, 2009). Therefore, when defining the concept of culture in its substance, it is important not only to emphasise the theoretical or historical contents, but also to mention its determinant of existence, which is critical for the understanding of any concept, and the field of its operation and influence, which is the basis for the topicality of any concept. In order to define the concept of culture for this paper, there were reviewed various definitions, but the basic frame was the definition of Sir E.B. Tylor (Kroeber, Kluckhohn, 1963, 131). Consequently, the culture in this paper is defined as follows:

Culture is comprised not of only the values, traditions and ideas, created as a result of human action, including their acquisition, conservation and protection, but also the capability to apply personal assessment (inclusion in the individual value scale) and capability to purposefully utilise it. Further, there is enabled the enhancement, as in a purposeful utilisation of culture, the individual becomes a creative user of cultural values, which consequently fosters motivation – i.e. continuation. Thus, by aspiring towards the ideal, the individual becomes a transformer of the world and materialises his level of culture. In these activities one can find the substance of life. Dynamically it cannot be anymore called simply – culture – it requires specification and personalisation. Consequently, a further substance analytics of the correlative concepts is necessary.

From 2007 to 2011 the author of this paper was working on the doctoral dissertation, the main objective of which was to analyse the development of cultural competence in high school in relation to the importance of learning the history of culture and culturology. After performing a research of scientific literature of a wide scope and applying various definitions of culture (the concluded definition was mentioned in the previous paragraph), the cultural competence in the dissertation and later publications was defined as follows:

Cultural competence is individual's intellectual property of a lifelong value, it is a dynamically progressing process of acquiring, understanding, utilising and creating cultural values. During this process:

- an individual acquires analytical, positive knowledge and concerned insight about the cultural heritage and about the importance and types of formations of the contemporary phenomenon (knowledge);
- an individual obtains a necessity and skills to utilize, evaluate and create cultural values, thus developing ever new skills (skills);

- an individual develops a capability to evaluate the contexts and acquires a motivated, self-evaluating desire to perform in a creative and active manner, corresponding with the contemporary events (attitudes), (Avotiņa, 2011).

The third concept, which is requisite to realise the objective of this paper, has been created by French anthropologist and sociologist Pierre Bourdieu (1930 – 2002) – cultural capital and the three basic forms of it - embodied cultural capital, objectified cultural capital and institutionalized cultural capital. In his theoretical judgments Bourdieu develops various concepts of capital, but those are not based on the historically most important feature of capital – economical value, which is determined by market, by the potential of sale, purchase, heritage or transfer. Bourdieu concentrates on virtual value added, he discusses such capitals – as language capital, symbol capital; he discusses three forms of capital: economic, cultural and social (Bourdieu, 1986). For this paper the applicable concept is that of the cultural capital, which under certain circumstances can be converted into economic capital, but also can be converted into social capital via an institutionalised education qualification. The first form of the cultural capital – embodied cultural capital – is characterized by consciously acquired and passively inherited features, which become lifetime habits, traditions and needs – for example, language application, communication, self-expression, which directly cannot be converted into economic capital. Thus, from the market value point of view, the embodied cultural capital does not have high value. The second form of the cultural capital is the objectified cultural capital. It can be possessed, it can be purchased and sold and its economic value can be determined rather accurately. Examples are works of art, books, instruments, etc. However, a critical feature of this capital form in the context of this paper is that consumption of it requires knowledge and capability to understand and appreciate it. Only under this prerequisite the objectified cultural capital obtains qualitative purpose of utilisation and can be adequately economically evaluated (e.g. the economic value of a bronze statue will not be determined by its weight and bronze price). The third form of the cultural capital - institutionalized cultural capital has direct relation to the contemporary educational structure. The value of this capital form is determined by diplomas and qualifications of educational institutions, their accreditation determines the economic value.

All above described concepts are summarised in one table, which emphasizes the correlation of the three concepts: culture, cultural competence and cultural capital.

Table 1

Summary of the definitions for three concepts: culture, cultural competence, cultural capital

Culture (Kroeber, 1963)	**Cultural competence (Avotiņa, 2011)**	**Cultural capital (Bourdieu, 1986)**
Ideas – former and emerging:	Dynamically progressing process of learning, understanding, applying and creating of cultural values:	Spiritual heights of the human action as a capital:
- spiritual and material values generated as a result of human activities;	- during the process there is developing analytical, positive knowledge and interested understanding of the cultural heritage and about the originating and the meaning and of the contemporary cultural phenomena (knowledge);	- institutionalized state of the cultural capital (academically sanctioned, formally independent of the person of its bearer, directly related to labour market);

Continuation of the tabele 1

Culture (Kroeber, 1963)	**Cultural competence (Avotiņa, 2011)**	**Cultural capital (Bourdieu, 1986)**
- inherited and lifetime significant traditions;	- during the process there is developing a need and skill to use, evaluate and create cultural values, thus cultivating new skills all the time (skills);	- embodied state of the cultural capital (passively inherited, but naturally dynamic, progressing and subjectively volatile);
- content of human life, including attitudes, meanings, beliefs, feelings, values, objectives, intentions, interests, knowledge, faith, relationships, connotations.	- during the process there evolves an ability to evaluate the context and a motivated, self-evaluative willingness to act creatively and actively in line with the contemporary events (attitudes).	- objectified state of the cultural capital, the realization of this capital state is only possible, when possessing certain cultural capital of the embodied state (relates to the economic capital in the most direct way).

The Table 1 depicts the interconnections of three concepts: the culture, the cultural competence and the cultural capital, which create a transversal net of the papers ideas. Every description of a detail, idea, concept and action has its own special meaning. The form of the table reveals also other connections. Thus, by examining the concepts of the culture and the cultural competence horizontally, one can conclude that:

- culture consists of the spiritual and material values, which are created as a result of the human activities and by using them there is evolving analytical, positive knowledge and an interested understanding, which can be converted in the cultural capital in its institutionalized state;
- culture consists of inherited and in life significant traditions, by nourishing them there evolves the need and skills to use, evaluate and create them; by developing new skills all the time, they become cultural capital in its embodied state, which is dynamic, progressive and subjectively volatile;
- culture are the content of the human life, it includes attitudes, meanings, beliefs, feelings, values, objectives, interests, faith, relationships, connotations; it develops the ability to evaluate the context and it initiates motivated, self-evaluating willingness to act creatively and actively, and when the economic capital can materialize as a spiritual value.

Results and discussion

This framework provides grounds for further statements about the cultural capital as a crucial structural component in the lifelong education process in the information society. It is important to mention that although knowledge is still regarded as an important indicator, the actual usage potential of it is diminishing, in the labour market it is not adequately appreciated and there have been considerable changes in knowledge demand in various education levels. Analytical and insight oriented knowledge is not only difficult to acquire, but also difficult to measure institutionally or to prove the quality of different standpoints. Increasingly one questions the actual possibilities to use the learned information and accordingly the need to learn it. Mass media ensure ever better and faster finding of every information bit.

Next aspect is related to the skills. According to the traditional perception, an individual acquires all skills already in the school. In today world one encounters situation, where there is missing the basis – both material and moral – for the lifelong skill development. Skills are rarely evaluated in the higher educational levels the development is left for the free choice of the individual. The contemporary mass media is providing satisfactory (though not always proven and trustworthy) information about everything, what would be needed. Therefore, an individual in any case is able to find information about what and how should things be done and thus may conclude that learning of varied skills is not necessary any more.

And, at last – the mass media, which includes social networks, fully provides standardized conceptions about the possible attitude, general meaning, opinions, desirable feelings, special values, crucial objectives, popular interests, etc. Schools, the official educational institutions, are not capable to influence here. Classic values are replaced by illusions of contemporary, popular values, created by mass media.

There are several important problems, which would require a debate:

- How to ensure a purposeful application of the contemporary information resources in the educational process in Latvia
- What prerequisites are necessary to ensure wide and free access of contemporary information environment, thus fostering the information society's growth towards the knowledge society?
- How to facilitate the influence of contemporary information resources on individual's comprehension of cultural capital's importance in personal life and contemporary society as a whole?
- Is it feasible to expect a development of cultural self-confidence, comprehension of knowledge value and cultural environment, which is favourable for the society (UNESCO, 2009, 32), if there does not exist a purposeful development of cultural competence during all lifelong education phases?

Conclusions

Development possibilities of cultural competencies in contemporary information society are anticipated in the theoretical methodology as well as in the conceptual EUC and UNESCO documents. According to the last it is expected to reach the strategic targets already by 2020.

Certainly, also in the future the school education will be crucial for individual development. The main objective of studies, of course, also in the future will be high marks of performance, however, there is a need to find ways, how to evaluate the added value – the ratio of creativity, which is based on the stability of human general spiritual values and by which an educated, culturally competent individual is characterized. The result of the process can only be evaluated by means of thorough, qualitative analytics, it is difficult to mark it and its evaluation is not included in the supplement of the secondary education diploma.

On the other hand, the education normative documents include exactly these individual qualities as one of the objectives. This means that unless the system is changed in its substance, it cannot be expected that the main players of the labour market will unanimously trust the institutionalized state of the cultural capital (diplomas and qualifications).

Beside teacher's responsibility about the theoretical contents of the studies and the methodology of studies, an important aspect is also students' responsibility. It has been recognized that for studies significantly important is the unity of knowledge, skills and attitudes, where each component is influenced by another and together an integrated result is achieved. Teachers in their practical pedagogical work should be able to offer to the students:

- wide spectrum of activities in various synthesized scientific disciplines, so that studies would be objectively attractive and contemporary;
- opportunity for the student to differentiate and develop own interests, and providing choice of various grades of difficulty, according to the students' self- evaluation;
- tasks for regular, creative and multi-faceted projects, which would foster an active development of skills.

Such approach would increase the cultural capital in its embodied state, it would provide opportunities to improve and activate the individual unique value of it. Overall, it would facilitate students' motivation and willingness to become part of world culture processes in overall, thus participating in lifelong education processes, and by this raising the individual value of the cultural capital. As a result it would become easier to implement the objectives, stated in the education normative documents and to observe the dynamics of the cultural competence development. That, in turn, would ensure objectively more adequate and subjectively higher evaluation of cultural capital in its objectified state.

The awareness and realization of all three states of the cultural capital in lifelong learning process would in overall increase the cultural competence of the information (knowledge) society.

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INNOVATION SUSTAINABILITY IN PROMOTIONAL RESEARCH OF DOCTORAL STUDENTS IN SOCIAL SCIENCES

Ingrīda Bolgzda Mg.sw., Mg. theol.; **Eridiana Oļehnoviča** Dr. paed.
Daugavpils University, Institute of Sustained Education, Latvia
Ingrida-bolgzda@inbox.lv; eridiana.olehnovica@du.lv

Abstract: Doctoral students, like future scientists to be, are involved into the processes, which are based on a triad: knowledge, research and innovation. This condition makes us assess interrelated issues on the characteristics of innovation and doctoral students' innovative potential to create this innovation. The article addresses the content analysis of the definition of research innovation and characterizes the innovation specificity in social sciences. Considering the types of the assessment of innovation, the emphasis is put on the quality of research innovation, choosing sustainability signs like quality indicators: contextuality, value-orientation, process management and systems of the resource use. Interviewing the doctoral students in social sciences (N=6), the questions dealt with innovation, sustainability in innovation and the environment promoting the innovative research. The novelty set in doctoral students' promotion work in social sciences is, in its turn, analyzed in the context of sustainability (N=16). Results of study depict the doctoral students' views on innovation and its sustainability is exposed in their promotional studies.

Keywords: doctoral students, innovation, promotional studies, social sciences, sustainability.

Introduction

One of the criteria in obtaining a PhD degree in sciences is to „develop and publicly defend a promotion thesis, which contains *original* research results and renders *new ideas* in the respective science or its sub-branch" (Doktora zinātniskā..., 2005). National qualification systems are conceptually based on the European Qualifications Framework for Lifelong Learning (2008), saying that in the result of doctoral studies, one has to acquire *innovative*, autonomous and holistic professional integrity and contribute to sustained development of *new ideas* in the context of professional field and science. Conditions of Qualification Framework do not specify what content the words: innovative, original study, new ideas, new concepts include, what signs witness the presence of innovation, originality, new ideas and insights in the promotional studies and, whether there should be applied some criteria of the quality. The essence of the words mentioned could be expressed by one unifying concept – *innovation*. The basic meaning of the concept „innovation" (Latin. *novus* - new) is the change of something known, introducing new forms or elements. The concept of innovation is widely used when speaking about the contribution of research into the science, i.e., in the field in which the doctoral students are involved.
Although the essence of the concept – innovation is unambiguous (as well as creation of something new), there still exist many contextually different explanations as to the content, signs and structure of innovation. In each field of sciences the innovation content will be different in correspondence to its specificity (Todtling, Lehner, Kaufmann, 2009). Innovation in engineering will differ from innovation in pedagogy, therefore one should attribute to the field of social sciences appropriate, uniform and sufficiently universal signs of innovation.

Conclusions of research on characteristics of innovation would help the doctoral students of scocial sciences to carry out a critical self-assessment of innovation of one's promotional study, as well as would point to things, how to organize the doctoral students' scientific activities in order to provide a favourable environment for research innovation.

The concept – innovation can be considered as being a comparatively new idea where its substantive explanations are still leading to discussions (Lapina, 2007). Most commonly the innovation is understood as an economic driving force; a process; a cooperation; changes to an effective way to welfare; transfer of knowledge; a new way of thinking; a way of life. The Latvian Law on Scientific Activity (Zinātniskās darbības…, 2005) determines, that an innovative idea is a process, in which new scientific, technical, social, cultural ideas or those of other fields, as well as elaborations and

technologies are introduced as a product or services which are competitive and in demand in the market.

On the other hand, J.Stabulnieks, the innovation expert, emphasizes that the concept of innovation has to be understood not as the acquisition of new knowledge or the process of generating new ideas, but as the practical implementation process of these new ideas in the field of production or service (Stabulnieks, 2009). Admitting the fact, that innovation implies only practical usability, there is a limited possibility to assess the innovation in other contexts. Not in all research fields it is possible to get an immediate practical usability and, whether the market value of innovation is the only criterion in long-term?

In Oslo manual (2005), on the contrary, the content of the innovation concept is widened, considering what kind of innovation is expected: product, process, organizational or social. Consequently the usability of the concept – innovation is wider, because innovation is based on an assumption that something is called as new in comparison to something which has been before.

In the context of contemporary society needs and development conditions, it is essential to assess the quality of research innovation (Council conclusions…, 2009). It is insufficient only to state the fact of innovation presence in research works of doctoral students in social sciences, but in the assessment of innovation it is necessary to actualize the question of quality as well. Sustainability is accepted as the parameter of innovation quality in research (UNECE Strategy for Education for Sustainability Development, 2005).

Methodology

The character of innovation has changed during the time and it keeps changing still. The Austrian economist and politologist J.A.Schumpeter, 1934 in the theory of business cycle has put forward the concept that the main reason for economic development is innovation. This traditional model of understanding is based on innovation in economic effectiveness and is also a dominating definition nowadays as well. At present, in parallel to it, there exist also other models understanding of innovation: holistic, linear, non-linear, social model (Mahdjoubi, 1997). Innovation is not longer only referred to economics, there appear intersectoral and multidisciplinary aspects. The classification of innovation thematically broadens and now it is already spoken about scientific, technological, social innovation and cultural creativeness (The Impact of Culture on Creativity, 2009). Innovation in the doctoral students' promotional research can include different model qualities, as well as interdisciplinary aspects. In the context of research, social sciences include those branches of sciences, which deal with the society and relations between the public and an individual.
Taking for granted the innovation structure and its characteristics as described in the scientific literature (Maslow, 2000; Rogers, 2003; Ness, 2004; Csikszentmihaly, 1996; Amabile, 1996; Mahdjoubi, 1997) it has been concluded, that innovation in doctoral students' promotional research in social sciences, can be characterized as follows:

- Analyzing the type of innovation, or innovation subject, most commonly are mentioned the terms: innovative process, innovative method, innovative product. In social sciences such a classification not always will be useful, for example, a newly written teaching material could at the same time be considered an innovative method, as well as an innovative product;
- Establishing the level of intensity of innovation, or the range in the amplitude between the previous, the existing and the newly-created. In scientific literature the innovations are grouped according to the intensity of innovation: philosophical prototype of innovation, primary innovation, secondary innovation and integrative innovation. The highest level innovation intensity is *ex-nihilo (Greek.)* or creation out of nothing. It could be considered more like a philosophical prototype, because at the level of humans even the most distinguished discoveries are not created, but discovered, or invented, therefore we can call the primary or baseline innovation as the highest innovation intensity level, which A.Maslow, (Maslow, 2000) descriptively called as „pioneer or comandors" innovation. Baseline innovation should be, in general, considered a rare phenomenon, because only by coincidence of certain circumstances, when an individual's innovative potential is synchronized with

changes in the field of a certain science or culture, we can expect the baseline innovation. Most commonly we can speak about the secondary innovation, or, continuing Maslow's offered classification „colonists' innovation following pioneers". In other articles it is defined also as an adaptive, improving or pseudo innovation (InnoSupport, 2007). On the basis of previous experience and knowledge there are created new forms of thoughts, which enrich the total noosphere and egregor of the humanity (Вернадский, 1989). The researcher is co-responsible for the ecology or non-pollution of this joint energoinformative environment, this points to the necessity to determine parameters of the innovation quality;

- Assessing the impact of innovations in the time perspective or how sustained the innovation is.
- The present topicality in science and education is the consideration of sustainability principle, it is attributed also to research innovation (ET 2020). If the innovative potential is directed only to short-term needs, then in the research philosophy there start dominating ideas on the wish and ability to create (Ness,2004), therefore like innovation quality parameters one should mention also the consideration of sustainability principles;
- Assessing the vastness of the impact of innovation in space or its contextuality, interdisciplinarity. Reduced and one-sided focus, or „tunnel vision" (Ness, 2004) in the content of created innovation causes risks to underestimate the consequences of the impact of innovation in the related fields. The spirit of our century requires the opposite position – innovation has to have a considerably broader positive influence.

Respecting scientific literature review and public development conditions, one has to emphasize how significant the innovation quality parameters are (Feist, 2006; Schmidt, 2008).

Getting acquainted with innovation characteristics, there are determined research limits, or the right way how to characterize and evaluate sustainability of research innovation in cases of doctoral students' promotional research:

- Type of innovation is defined depending on the subject of innovation;
- Intensity of innovation is determined by the experts of the corresponding field and social evaluation;

The fact of the presence of innovation and its intensity can be measured, attributing standards of the respective field and social evaluation in a certain community (Csikszentmihaly, 1996; Amabile, 1983). Consequently, in the evaluation of innovation there is stressed both the specificity of a certain field and the role of experts, and also the public ability to accept and use the innovation. Like one of the innovation aims E. Rogers (Rogers, 2003) mentions the need to cause the public reaction to its novelty (something not existing before), in such a way getting rejection or adaptation. Here an important role is paid to the culture of innovation and creativity, as well as traditions in the society. We have to mention, that not every innovation can be accepted by people, because innovation of a high intensity level, by its nature, is „revolutionary" and is ahead of the current experience. It means that in the assessment of innovation, the emphasis should be placed not so much on the people's ability to accept the novelty, as to the social benefit of innovation in the future. Impact of innovation in time and space, like innovation categories, can be evaluated by applying sustainability criteria and its parameters.

Taking into account the limitations mentioned, in this research stage the analysis was done as to the innovation subject and innovation sustainability, or its impact in time and space. Social evaluation of the innovation intensity will be analyzed in the further course of the study, inviting experts and summarizing the information on evaluation of research innovation in public space.
Promotional research innovation of doctoral students in social sciences can be analyzed from different angles: from the position of innovative potential, which includes research competences and aspects of environmental support, from the position of the result of the innovation creation process (promotional study), as well as by analyzing the preconditions of a successful result – doctoral students' understanding of innovation.

In 2012 a pilot study was done with an aim to find out the understanding of doctoral students in social sciences of the innovation content and to characterize innovation in promotional studies of social

sciences in long-term context. As concerns the article, the aim of the pilot study is not being fully realized yet, because at present only the initial stage of the study is described.
The promotional theses in social sciences defended in Latvia's universities from 2000 – 2011 were analyzed: in pedagogy and education (N=13); psychology (N=3). In promotional studies the chapters on topicality and novelty were analyzed, as well as the doctoral students' theses forwarded for defence. At the same time, there were done partially structured interviews (N=6) with doctoral students in social sciences from the study programmes: sociology (N=3); psychology (N=1); pedagogy (N=1), economics (N=1).

In the data analysis we used the text and partially structured interview transcript in qualitative content analysis, using coding and theme selection classification systems (Ievads pētniecībā…, 2011).
In order to determine a certain quality in promotional works, the content units developed as a result of content analysis were compared to long-term parameters and the data were interpreted by contextual approach. In the analyzed promotional studies it was determined, how many and what sustainability parameters are included in the author's developed novelty. Each of the four sustainability signs include several parameters, which emerge from the generalization of the promotional study content units and the correlations of these content units with sustainability signs (Learning for the future: Competences in Education for Sustainability, 2011; Pipere, 2006; Sterling, 2003, Scott, 2002).

Table 1

Sustainability signs and parameters of innovation

Signs of innovation sustainability	Parameters of innovation sustainability signs
Contextuality	4 parameters : interdisciplinarity, broad point of views, individual/common interaction, theoretical/practical unity
Value orientation	3 parameters: versatility/tolerance, spiritual values, social responsibility
Process management at individual and/or community level	4 parameters: anticipation of changes, transformation of praxis and/or theory, openness/cooperation
Use of resources at individual and/or community level	3 parameters: local governments, self-development, self-functioning systems

Results and discussion

In scientific literature (Wolfe,2006) there are mentioned the following classical innovation subjects or types, such as: process, method and product, but in the research innovation process the range of subjects is broadened, because in promotional research of doctoral students in social sciences the innovation subjects mentioned were: model developed Mo (6 promotional research works); process – P (3 promotional research works); method – Me (3 promotional research works); terminology – T (2 promotional research works); parameters/criteria – RK (2 promotional research works). The most commonly found innovation subject is the model, the rest of innovation types are numerically distributed rather proportionally.

In Table 2.- just opposite to the code of promotional work there is drawn the number of sustainability sign rate.

In order to understand the content of innovation sustainability parameters, one can offer a promotional study (6Mo) like an example, in which all four sustainability signs are found.

Parameters of contextuality signs (broad view, individual/common interrelationship) are characterized by the content units: *„ local education environment like a part of global environment; inclusive environment; ecology of man and social system*"; parameters of process management (anticipation of changes, transformation of praxis and/or theory) are characterized by the content units: *"continuity of education, future-oriented community resources"*, parameters of the system of the use of resources (local government, self-development systems) are characterized by- *„directions of environmental self-development; continuous education";* but value orientation parameters (versatility/tolerance, spiritual values, social responsibility) are characterized by the content units: *„humanistically target oriented;*

ecological thinking". In the rest of promotional research works the total number of sustainability signs and their criteria are lesser than in the example mentioned.

Table 2

Signs and parameters of innovation sustainability in promotional research

Code of promotional research	Contex-tuality (parameter rate)	Value orientation (parameter rate)	Process management at individual and/or community level (parameter rate)	Resource use at individual and/or community level (parameter rate)
1P	4	-	1	-
2Mo	4	-	-	1
3RK	4	-	-	-
4Mo	3	-	1	-
5Me	3	1	-	-
6Mo	3	2	2	2
7T	2	1	1	1
8P	5	1	1	-
9Me	4	1	1	-
10Mo	5	1	1	1
11RK	4	-	1	1
12Mo	3	-	1	1
13Me	3	-	1	-
14P	2	-	1	1
15T	4	-	1	1
16Mo	3	-	2	1

Contextuality of innovation from the four sustainability signs is the most pronounced, because in all promotional research works there was included one of another of contenxtuality parameters. It points to the doctoral students' attempts to include in the innovation content much wider correlations. Such sustainability signs as value orientation and the systems of the use of individual and/or total resources are included in the innovations in a lesser number.

From contextuality parameters one should specially emphasize the attempts to link various fields and to integrate them into the global context. Although separate contextuality parameters are found in all research works, yet when comparing the parameters, a tendency is seen, that in the offered innovations a greater emphasis is put on theoretical reflexion, rarer on practical effectiveness or usability and value orientation.

Sustainability envisages the anticipation of changes; therefore it is essential that innovation would be directed at the management of the process of changes. In 13 promotional research works there is included one of parameters of this sign.

In 6 research works there was not observed such a sustainability sign as the use of the available resources. Not including the locally available resources, there exists the risk, that there may develop a weak link between the usefulness of innovation and the definite target audience. The sustainability sign : value orientation is found not in all promotional research works. Not always it would be proper to speak about the value orientation in the direct way, it can be exposed indirectly as well. This is the question not only about the ethics of research, but also about social value of innovation, or value-added effect. Which can be characterized by a practical example: innovative educational model includes not only the way how to acquire the study material more effectively, but also cooperation and individual approaches.

The fact, whether the created research innovation in social science would be coordinated with sustainability principles, is close to the concept – innovation and the understanding of the essence of sustainability. In order to get the idea on the content of this concept from the point of view of doctoral students, there were carried out a partially structured interviews and the transcripts of the interviews

were analyzed (N=6). In Table 3 the basic questions and the corresponding content units are summarized.

Table 3

Content analysis of interviews – content units

What is innovation?	What is sustainability in innovation?	How to promote innovative research?
Topicality; compliance with the spirit of time; to serve the people, usefulness; nonstandard solution; innovation, quality; innovation affects the level of life; scientific activity is always innovative; integrity; holism; integration of knowledge.	Usefulness; process is more significant than the aim; self-revelation; quality; for a longer period and wider circle of users; locality; continuity; sustainability in science and business is impossible.	Creative environment; courage; self-development; professionalism; personality features; money; self-creativity; moral maturity; cooperation; joint work; creativeness; self-reflection.

Analyzing the nature of innovation, in a part of respondents' answers there prevailed the effectivity of innovation as a result of activity (for example, content units – *usefulness; for a wider circle of users*, etc.), but in the other part – characteristics of the creative process of innovation and the innovation itself (for example, content unit – *nonstandard solution, quality; localization*, etc.). Respondents stress the topicality of innovation and practical usefulness, as well as points to the holistic and integrative nature of innovation. In the answer, that scientific activity is always innovative, one should add, that innovation can develop also as a result of traditional scientific activity. Thus, one can start a discussion, whether innovation is only a result or a process. A similar answer to the question – whether innovation is a result or a process - is not given also by results of the pilot study.

Comparing the answers to the question on innovation sustainability, using study authors' created signs and parameters of innovation sustainability, one can see interrelated content similarity. Content units: *for a longer time and broader circle; localization; self-revelation*, etc. point to signs of innovation sustainability: contextuality, use of available resources and systems of process management. Sustainability is recognized as the innovation quality parameter. Part of respondents perceives sustainability in a reduced way, only in the dimension of time. It can be found also in the answer, that sustainability in science and business is impossible. It is a contraversialy valued answer, because sustainability in innovation does not mean anything statical and unchangeable. Not in vain like one of sustainability signs in innovation there is mentioned the anticipation of changes and management. The answers also say – localization, which, at the same time, means the involvement of available resources.

In total, each respondent has mentioned not more than two sustainability signs in innovation. In order to attribute sustainability character to research innovation, the new researchers should have a deeper understanding of sustainability.

In the question about promotion of innovative research, respondents put more emphasis on the fact what hinders to realize the innovative research and pointed to several obstacles: *limitations, bureaucracy; fright; experts' attitude; lack of knowledge, loss of interest; money; competition; knowledge environment; „farmstead" thinking; inability to accept the different.* Subjective and objective obstacles mentioned are contextually linked to basic principles of sustainability – versatility, tolerance, cooperation, public creativity and innovation culture.

Results of the pilot study show that innovation sustainability questions are of concern not only in doctoral students' understanding of innovation sustainability, but also in the final result of doctoral students' research activity – the quality of research quality.

Conclusions

- In Latvia at present there idea prevails, that innovation is a process, in which new scientific, technical, social, cultural, or any other ideas, elaborations and technologies are implemented

in the product or service, being in demand and competitive in the market, admitting, however, that innovation has only practical importance, its ability to assess its effect in other contexts is limited. In social sciences field one should adapt the corresponding, unified and sufficiently universal innovation signs.

- Innovation in promotional research works of doctoral students in social sciences can be analyzed from different points of view: from the position of innovative potential, which includes research competences and aspects of environmental support, from position of results of innovation creation process (promotional research), as well as analyzing a successful result precondition – deeper knowledge of doctoral students in innovation.
- Research innovation in social sciences is characterized by its intensity, as well as the influence in time and space, traditional types of innovation: process, method, product supplemented by new types: model, terminology, elaboration of parameters/criteria. For determination of innovation intensity there are distinguished three levels: primary, secondary and integrative, considering also the society's ability to accept and use innovation. Innovation of a high intensity level, by its nature, is exceeding the present experience, therefore in its evaluation the emphasis should be put on the social benefit in the future.
- In the context of public needs and in the context of conditions of the development it is insufficient to state only the presence of innovation fact in research studies of doctoral students in social sciences, in the assessment of research innovation it is important to update also questions of quality, emphasizing sustainability as one of the criteria. Results of the pilot study demonstrate that the doctoral students of social sciences show a reduced understanding of sustainability and innovation, which, in its turn, affects innovations of sustainability content in promotional research works.
- In order to raise the innovation quality in doctoral students' work in social sciences, they should render an extra knowledge on the interrelationship of innovation and sustainability. Creation of innovation calls for an adequate environment which is made and affected by creativity and innovation culture in all education stages and in the society in general. The character of the innovation sustainability should be integrated already in the promotional study idea, aim and strategy, in order it could expose itself at the end of research to a full extent.

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EIROPAS SAVIENĪBA
IEGULDĪJUMS TAVĀ NĀKOTNĒ
SCIENTIA VINCES
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ADULT LEARNING THROUGH PARTICIPATING IN VOLUNTEERING PRACTICE

Genute Gedviliene[1] Dr.paed.; **Dalia Staniuleviciene**[2] Mg.paed.; **Christian Gridel**[3]
Vytautas Magnus University, Lithuania[1; 2]; University of Kaiserslautern, Germany[3]
g.gedviliene@smf.vdu.lt[1]; d.staniuleviciene@bibl.vdu.lt[2]; gridelc@goooglemail.com[3]

Abstract: the article aims to show the influence of volunteering in the context of strengthening social cohesion. This requires dealing with different theories and models to describe and explore the nature of volunteering. A pilot-research was carried out from the theoretical framework. The results of the research show a correlation between the important things in life and the level of influence in this field, the relevance of civic skills and competences and the role of reflection. Besides, the study provides an insight into the volunteering practice in Lithuania.

Keywords: adult learning, volunteering, participation, decision making, civic skills, knowledge, reflection.

Introduction

When we talk about the ways to strengthen social cohesion such as civic empowerment and social partnership it's always connected with a process of (lifelong) learning on individual and organizational side. The role of reflection in this context is fundamental. Without reflection there is no development, improvement, innovation or social cohesion. Volunteer work is a practical way of gathering experience and reflecting-in and on-action. Therefore volunteers can expand their skills and competences which are needed for social cohesion.

The **aim** is to describe adult learning through participation in volunteering practice.

The **object** is the adult learning trough participation.

The **tasks** are to:

- analyse scientific sources in order to identify the main aspects out of different theories in connection with volunteering
- verify theoretical considerations by describing the participatory reality of adults in the society

Participation

When we talk about civil empowerment and social partnership we talk about various forms of participation (codetermination) of individuals and groups or organizations in decision making processes. To describe the nature of participation, Arnstein S., for example, uses the "ladder of citizen participation He makes a threefold division and differentiates between "non-participation", "tokenism" and "Citizen Power". Within this tripartite division, he distinguishes eight stages. Arnstein S. defines participation as to be involved in decision-making. Just informing or explaining about decisions does not meet this criterion. In his opinion the step "informing" is *"… the most important first step toward legitimate citizen participation"*, but he also mentioned that no one has absolute control like written on stage eight. But he nevertheless identified power as the main motive. Participation refers to the relation of actors to each other and the distribution of decision making power between these actors (Arnstein, 1969). By using this model, we can also identify a self-referential holistic side of participation. As a part of society, citizens

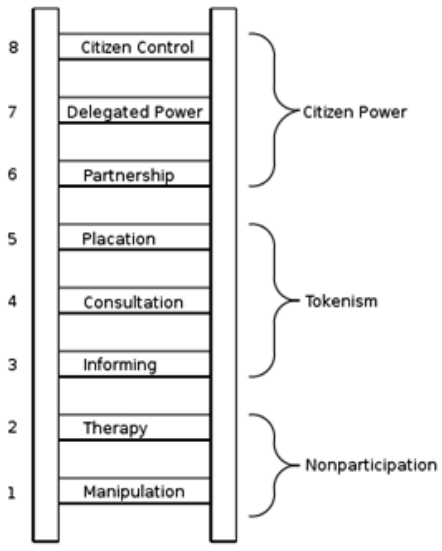

Figure 1. Ladder of citizen participation (Arnstein, 1969).

live in different systems so that their influence on decisions may vary. In their own families they will have more influence on decisions in contrast to decisions

concerning the country, for example. When put it in the context of management of innovation some barriers to innovation can be identified. The different systems like family, community, city, country, etc. can be seen as hierarchical barriers while Arnstein's S. model of participation

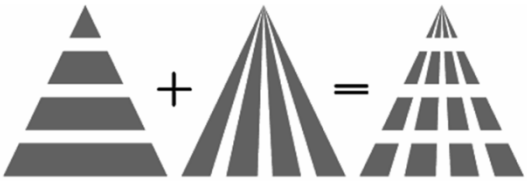

Figure 2. Operational islands (Hörmann and Tiby, 1990).

describes functional barriers, which together lead to some kind of operational islands. Hörrmann G. and Tiby C. are using this illustration to describe barriers to innovation at an organizational level (Hörrmann & Tiby, 1990). Following this theory, it is clear that citizens are acting in different contexts on operational islands. The goal is be to use the leeway and resources of each island to make use of the level of participation that is possible.

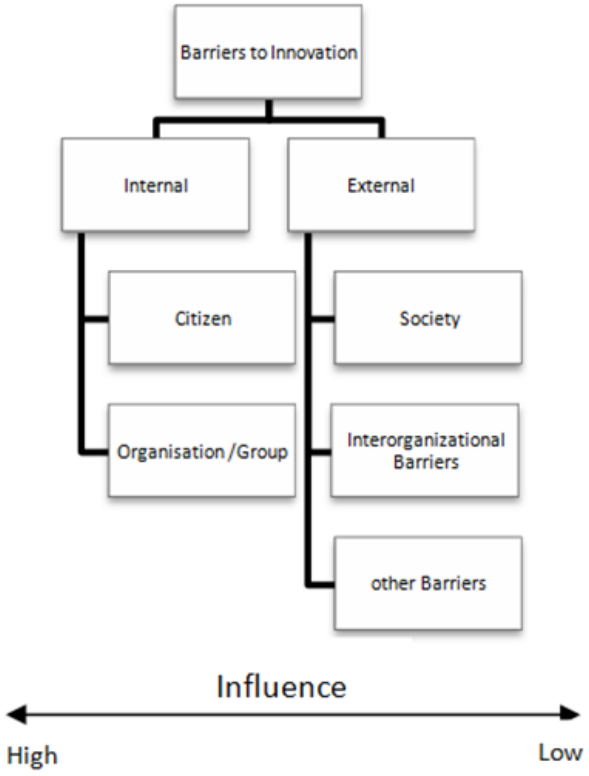

Figure 3. The participation and barriers (Müller-Prothmann, Behnken, 2008)

Another model illustrating the participation and barriers is from Müller-Prothmann et al. (2008). The diagram represents a simplified and adapted-to-the-topic model. In both models, it is clear how the level of participation corresponds to external factors and these are mutually dependent. But at the same time it is clear that the level of the citizen (internal) is fundamental to understand the dynamics of participation. What does a competent and responsible citizen need to participate in a democratic county?

In a report produced by the 'Campaign for the Civic Mission of Schools the use of civic learning' is described as follows: "Civic skills are the abilities necessary to participate as active and responsible citizens in democracy. They are necessary for critical thinking and collective action, and they include speaking, listening, collaboration, community organizing, public advocacy, and the ability to gather and process information." (Guardian of Democracy..., 2003, 16). The report also notes that self-efficacy is a precondition in order to make a change (civic action) but, at the same time, this action can lead to more self-efficacy. Even the European Commission identified eight key competences in the context of lifelong learning. One of those is the "Social and civic competence". They say it is based on knowledge and includes the ability of critical and creative reflection (Key competences..., 2006, 10).

But what exactly does this mean? Living in a knowledge society forces citizens to learn how to deal with knowledge. That means they have to know how to transform material knowledge in a constructivist manner. To illustrate this process, Arnold and Lermen developed a model (Arnold, Lermen, 2005, 47).

Based on this model, it is clear that citizens actively manage their own learning process and the evaluation of what is learned. In front of the background of this knowledge the person then reflects on his real life.

Very important in this context is motivation. Why do people want to participate? How does one motivate them, fuel their desires? Going back to Adam Smith, different authors (Smith, 2005; Esser 1993, 243) have assumed two main goals for human action: physical well-being and social recognition. So there must be similar results when people choose to participate. They have to feel like they could make a change. The argument is connected with the aforementioned (skills) self-efficacy. But who assessed the opportunities and the result?

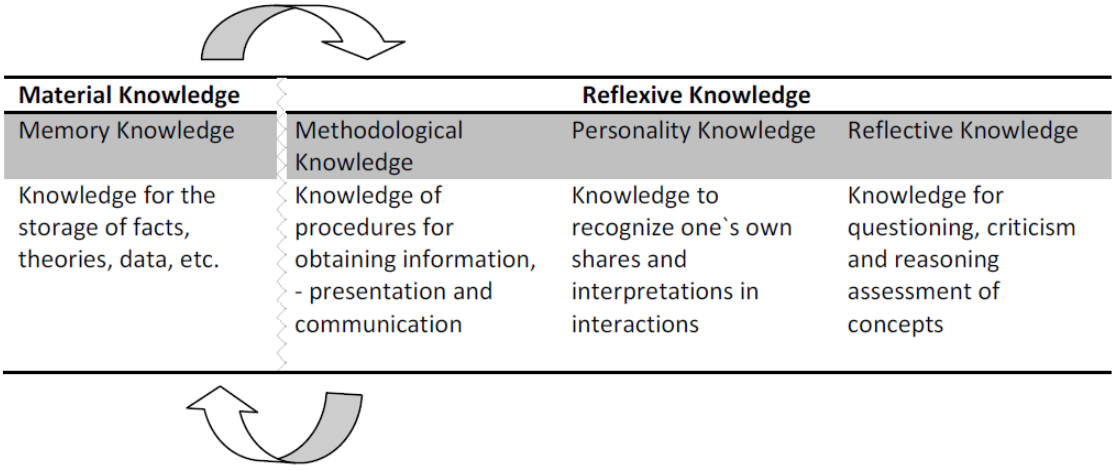

Figure 4. Transformation of knowledge (Arnold and Lermen, 2005).

Therefore we have to deal with reflection. The idea of reflective practice goes back to D.Schön. He differs between reflection-in-action and reflection-on-action. Reflection-in-action means reflecting during the action about the action. Reflection-on-action is when we review what we have done, how we did. D.Schön mentioned that knowledge is necessary for both types of reflection (Van den Bossche, Beausaert, 2011, 82-83). Out of this theoretical framework the following three theoretical outcomes could be identified and a questionnaire was developed.

The theoretical outcomes

- The motivation of citizen to participate depends on the level of influence in decision making.
- It needs civic skills/competences to participate.
- It needs knowledge and the ability to reflect.

Results of the research

From 88 participants 80.7 % are females, 83.9 % are students, 24.4 % are working. Of those who are working, 95.23% are volunteers. A majority of the respondents are single (88.6%). Two groups could be identified, the group of volunteers and the group of people who are not volunteering at present.

Which field are you volunteering in? If you are not a volunteer, which field would you like to participate in?

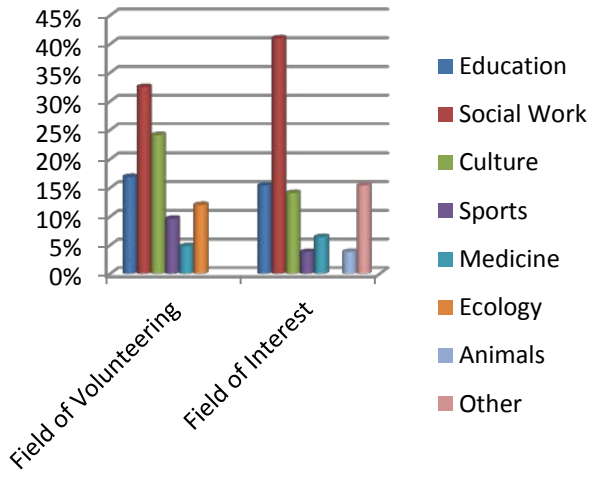

Figure 5. Field of volunteering and field of interest.

What personal benefits do you get through volunteering? What are your thoughts about why people become volunteers?

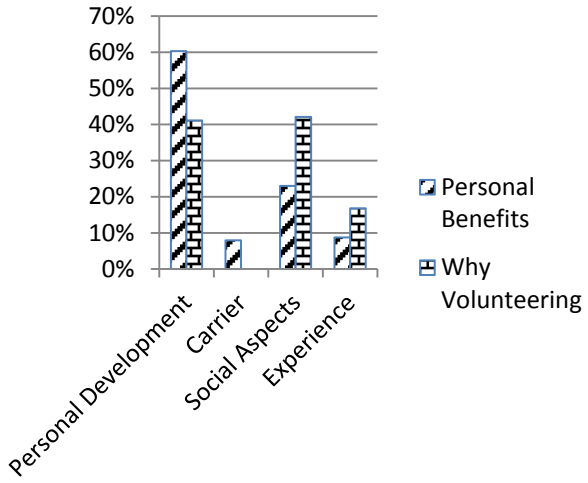

Figure 6. Personal benefits and thoughts about volunteering.

What hinders you to be a volunteer?

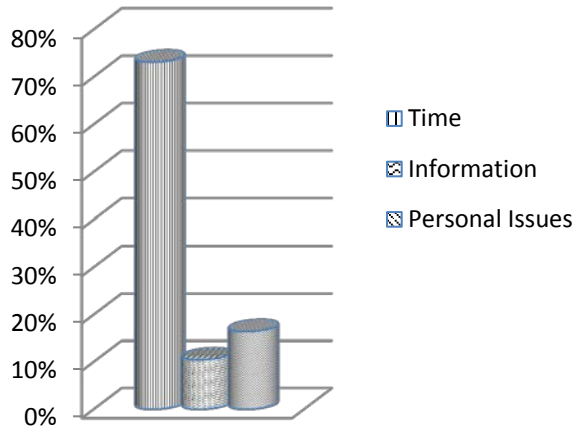

Figure 7. About being a volunteer.

How important are the following things in your life?

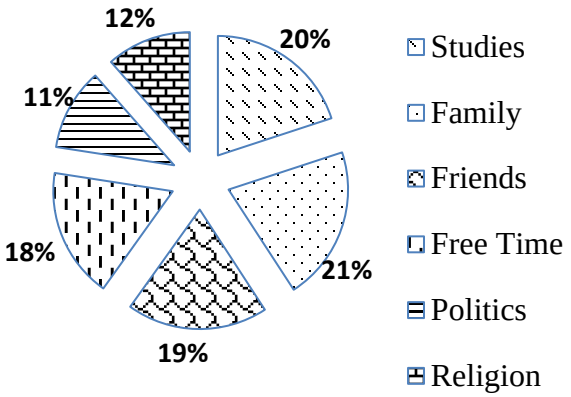

Figure 8. Importance of studies, family, friends, free time in one's life.

How many hours a week are you volunteering? How many hours a week would you like to volunteer?

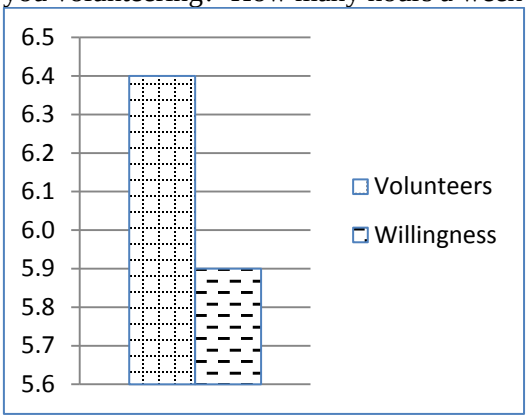

Figure 9. Volunteering hours per week.

Presumptions

The research shows, if volunteers have a placement, they are also more willing to engage. The social field is the most interesting for them and their main motivation is personal development. But the research also reveals that the ways of volunteering have to change in a more flexible way like: home-office with flexible time planning possibilities for example. An idea to reach that could be the implementation of online-platforms where volunteers can search for suitable offers and inform themselves.

Theoretical outcome I

The motivation of citizen to participate depends on the level of influence in decision making.
Results from the research

Do you think that being a volunteer can make a change in the environment?

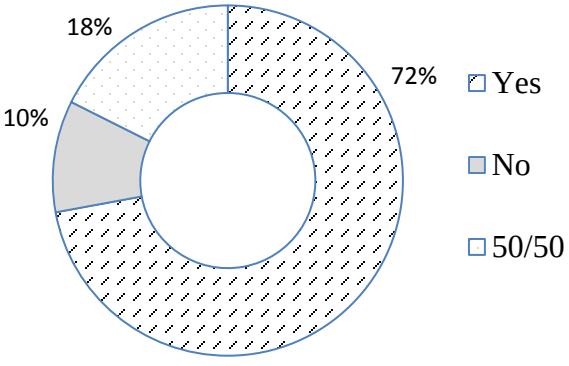

Figure 10. Making a change in the environment.

What could be your influence in these fields?

How important are the following things in your life?

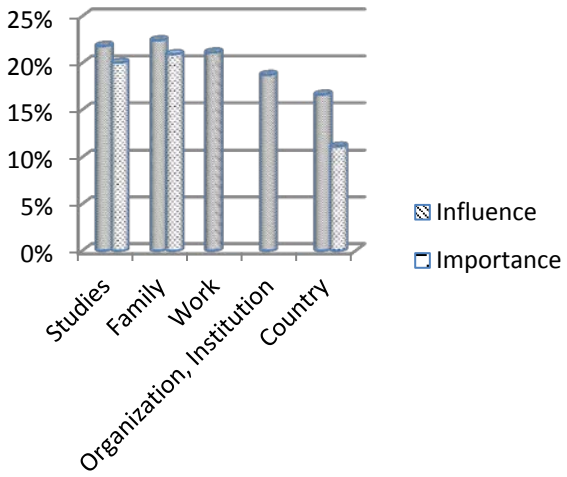

Figure 11. Influence and importance in one's life.

Presumptions

As already assumed in the theoretical part, there is a correlation between the importance/interest and the degree of the influence. The respondents think that volunteering is a way to change things. By

volunteering, they can be aware of their self-efficacy, which is simultaneously motivating. Reflectance in this regard is a necessity to be able to rename a change at all as such.

Theoretical outcome II

It needs civic skills/competences to participate. Results from the research

What knowledge, skills, values and personal characteristics a volunteer needs for civic action?

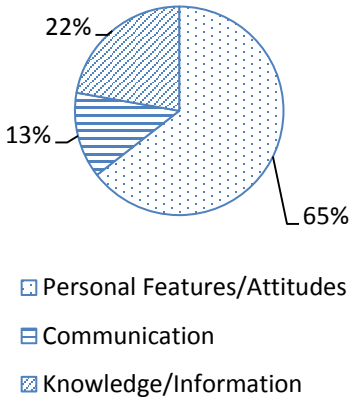

Figure 12. Volunteers' needs for civic action.

How important are knowledge, skills, values and personal characteristics in this context?

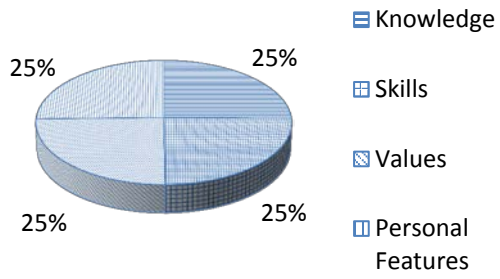

Figure 13.The importance of knowledge, skills, values and personal characteristics.

Presumptions

The respondents agree with this assumption. For civic action personal features seems to be more important than in general. Civic skills and competences seem to be very important for the volunteers. In context of LLL these skills and competences can be continuously expanded through volunteering.

Theoretical outcome III

It needs knowledge and the ability to reflect. Results from the research

How are you supported by the institution?
What kind of support do you expect from an institution?

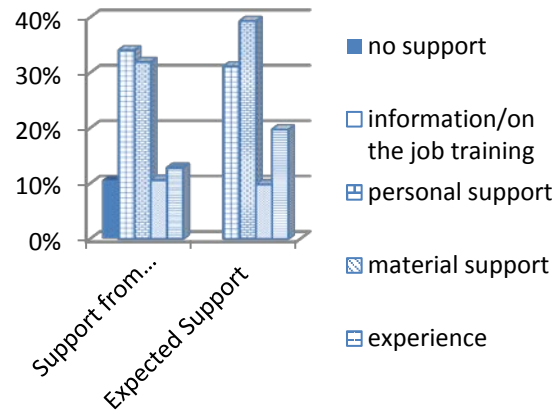

Figure 14. Support from institution and expected support.

What can you say about reflective volunteering practice?

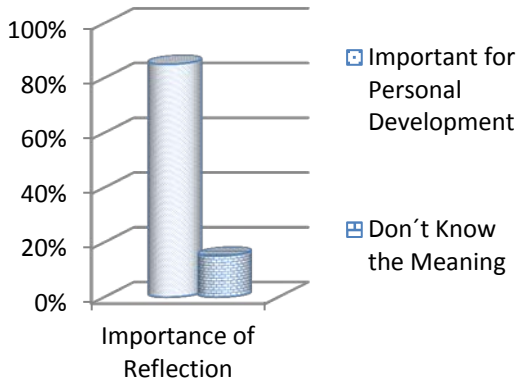

Figure 15. About reflective volunteering practice.

Presumptions

Volunteers expect different types of support. The most important are the personal ones (personal support and on-the-job-training) which leads to personal development. It's assumed that volunteering is a practical field for reflection and to transform material knowledge into reflexive knowledge. The competence to reflex is mentioned as very important and a precondition to achieve these goals.

Conclusions

Volunteering participation is a fundamental part of our everyday life. In different situations and systems we have to make and deal with decisions. The research shows that the level of participation can vary. In the context of strengthening social cohesion skills, competences, the ability to reflect, motivation and knowledge are basic to take an active part in decision making process. These factors are mutually dependant. To develop sustainable ways to strengthen social cohesion concepts have to deal with these mentioned factors. Volunteering is a very important field to expand civic skills which are needed for civic action. To achieve this, the nature of volunteering has to be adapted to the needs of possible volunteers. The research showed a gap between supply and demand. Taking these conditions into account, it would create a win-win situation. On the one hand it is the way to strengthen social cohesion in the society; on the other hand it is the development of volunteers' personalities.

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AN EFFECT OF EPORTFOLIO SYSTEM ON COMPETENCE IMPROVEMENT AT THE DIFFERENT STAGES OF THE COURSE

Aleksandrs Gorbunovs[1] Eng. & M.sc.edu.; **Atis Kapenieks**[2] Dr.phys.
Distance Education Study Centre, Riga Technical University, Latvia[1, 2]
aleksandrs.gorbunovs_1@rtu.lv[1]; atis.kapenieks@rtu.lv[2]

Abstract: Learning and training as a competence acquisition process excited masters' minds for ages. Nowadays world brings new educational challenges. On the one hand, modern technologies open up new possibilities for learners, make learning accessible for anybody anytime and anywhere; on the other hand, humans' society still needs recognize effective educational methods to engage learners and cope with the demand of lifelong learning. Obtaining of new competences requires students to show their respective attitude and willingness to do so. This paper examines an issue of learners' competence improvement process through their involvement into several self- and peer-assessments within two information systems: university's e-study portal and ePortfolio ones. The research takes notice to an importance of ePortfolio system in competence enhancement at the different stages of the studies. New approach in scaffolding learning, based on development and implementation of engaging ePortfolio systems, may have significant positive impact on further individual training and education developments.

Keywords: ePortfolio, information system, assessment, competence, lifelong learning, scaffolding.

Introduction

People so often lose interest of further knowledge acquisition if they do not get appropriate teaching staff's or more experienced person's advice. Scaffolding learning approach provides necessary support to a person in appropriate study directions which is decisive to move forward (Bruner, 1975). This assistance given in a mode of modelling which activates problem solving abilities and draws learners' attention to the key issues, as well encourages learners to think critically and reflect, is determinant (Wood, Bruner, 1976).

Reflection might be considered as a process which "describes, analyses and evaluates an experience" (National Health Service…, 1993). It is admitted that "the real value of an ePortfolio is in the reflection" (Barrett, 2009). Reflection on evidences of learners' activity and accomplishments within ePortfolios ought to be considered as essential component (Lyons, 1998). Reflection could be imagined as a set of learner's problem solving abilities and skills (Moon, 1999). It analyses processes in person's activities, changes of thoughts, acting, disclosures, and developments against appropriate criteria, as well is continuous and descends to particulars of specific practice issues in different circumstances, contexts and stages (Kim, 1999). Reflection on critical thinking notes and recommendations, as well own considerations may lead to notable competence developments.

Competence development always ought to be viewed in close connection with competence assessment activities (Baartman, Bastiaens, 2006). Competence assessment processes in different forms should be recognised as "competence development in itself" (Peer and Self-Assessment…, 2011).

Implementation of ePortfolio systems becomes more and more important to improve learners' competences. Nowadays ePortfolios are not just a signboard which could be used to show others own achievements. They changes together with educational paradigms and new challenges which bring us lifelong learning demands.

Methodology

Living Lab user centred research method (Chesbrough, 2003) was chosen to examine experimental ePortfolio system prototype. To conduct inspection about learners' possible engaging and their competences' enhancement ways, ePortfolio system algorithmic model was created (Figure 1) and embedded into existing, but for this case remodelled, bachelor level blended learning course "Business Planning for Open Markets (BPOM)". It has embraced two approaches and two systems.

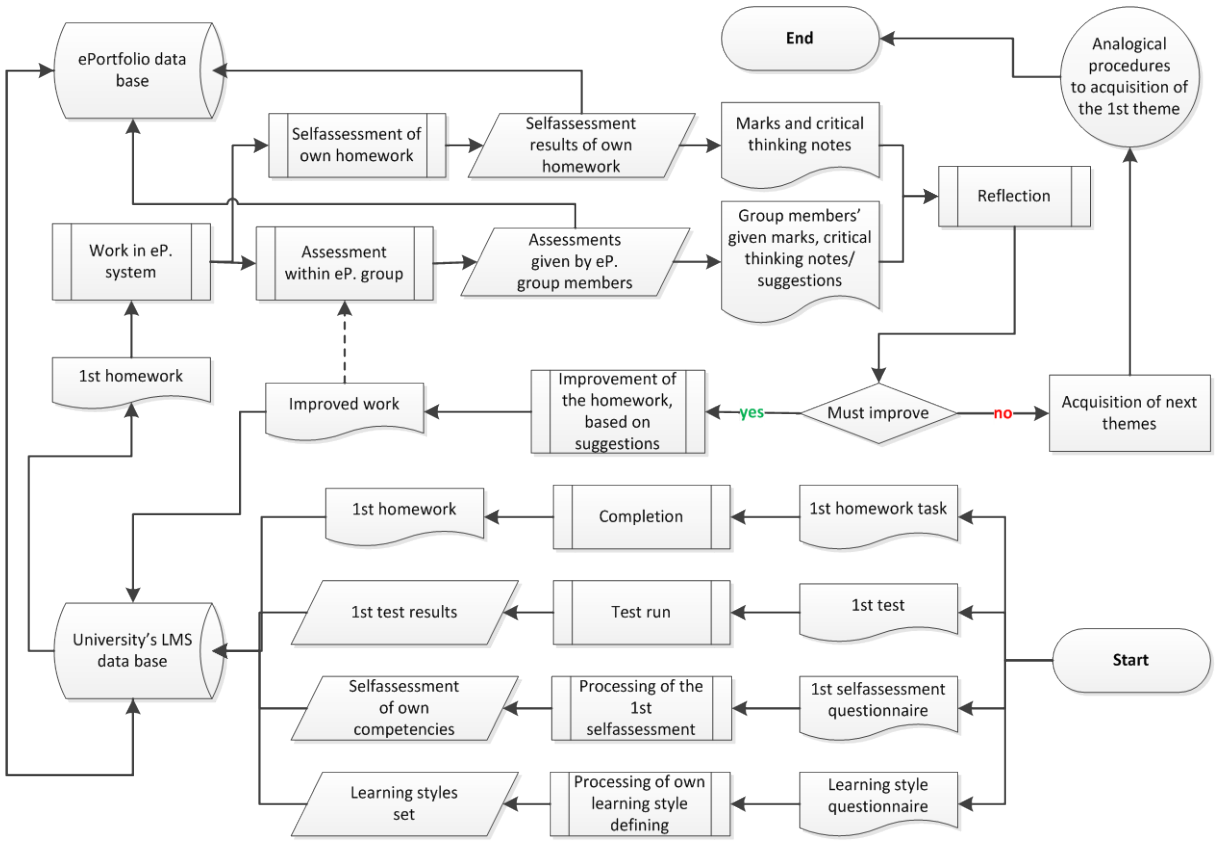

Figure 1. ePortfolio system algorithmic model.

The first information system was based on Riga Technical University's e-study portal "ORTUS", and employed open source environment "Moodle". The system was enriched by additional self-assessment questionnaires. They had the aim to point out learners' competence levels related to the course, such as the competence to estimate a viability of business idea, competence to find the ways of company's ability to carry out business idea, marketing competence, the competence to be aware of competition factors, the competence to estimate financial resources, the competence to assess and develop company's ability to carry out business idea, and the competence to identify possible risks. Entirely seven BPOM competencies were to be self-appraised totally eight times, starting from initial statement and continuing self-assessment procedures after every completed course theme, i.e. learning module, each second week. Students were asked to fill-in these forms by ticking appropriate level of competence in a scale from 1 to 10, where 1 meant the worst appraisement and 10 – the best one.

Tests and main learning objects, i.e. e-text-books, presentations, exercise tasks, practical templates and useful links, among them – direct connections to ePortfolios, were also placed in "ORTUS" environment.

The second information system in a form of collaborative engaging ePortfolio was built up completely anew. Students' accomplished homework tasks from the "ORTUS" were sent to ePortfolio system. There were formed groups, each of four students, in homework submission sequence. This rule applied to first two group-working activities within ePortfolio system. Starting from the third task, ePortfolio groups remained unchanged. The purpose to do so was our considerations that learners within particular group would better hip to group members' homework explanation, ideas and calculations. We have expected that the reflection on own and peers' remarks would show up to the best advantage in this case.

Students had to acquaint themselves with other ePortfolio group members' accomplished homework (essays and calculations) and assess them both in marks in a scale from 1 to 10 (the worst – the best valuation) and in a form of critical thinking notes – further possible work improvement

recommendations. Besides, the same procedure applied on assessors – they had to make self-appraisals similarly as they did so for their peers.

A template of assessments summary table within each ePortfolio group for every group-working task consisted of few columns to display there an accomplished work author's login name, assessors' (among them – own name in the case of self-assessment) login names, titles of assessed criteria, assessment marks in a scale from 1 to 10, and feedback in a form of critical thinking notes and recommendations on further improvements.

Both systems were tailored with links and availability to collect learning activities and outcomes data. These two dimensions allowed making appropriate correlation analysis of ePortfolio system impact on learning outcomes and competence development.

Results and discussion

The first experimental ePortfolio system prototype testing was implemented in the academic study year of 2011/2012. Totally 203 students really started abovementioned BPOM course. Many of them dropped-out from the university by causes which vary. 173 students finished the course in January, 2012.

The first part of analysis was devoted to examine whether competences levels increased during particular course modules and which sort of activity had most impact on it. The second analysis part examined learning outcomes correlations with activities within ePortfolios.

Firstly, we have detached results by students' initial self-assessment marks and checked corresponding developments during whole course. Only 145 participants filled in all eight self-assessment questionnaire forms. Solely these questionnaires were considered as valid to make inferences.

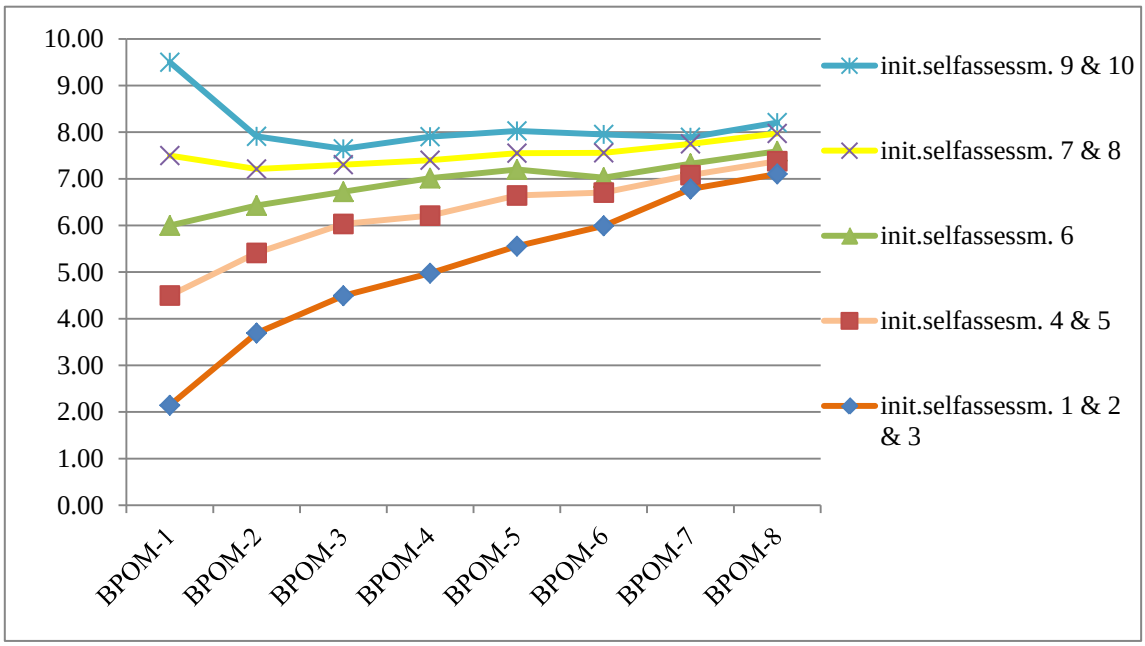

Figure 2. Competence development spectrum.

Students' answers show learning progress which is especially notable at the end of the course. All learners with different initial self-assessment marks achieved results, which are much higher than initial BPOM average competence level, and come to narrow spectrum of results. Figure 2 shows these progressions, where average BPOM competence development is illustrated in a form of five sets, based on initial self-assessment results (the first – with initial marks 1, 2 & 3, the second – with initial marks 4 & 5, the third – with initial mark 6, the fourth – with initial marks 7 & 8, the fifth – with initial marks 9 & 10). It could be stated that we have got competences development spectrum which characterizes changes in competence development during certain period (Gorbunovs, Kapenieks, 2012). Self-assessments illustrate also learners' chosen methods and tools, and their impact on

learning outcomes and competence development levels at different course stages. It is found that there is a notable gap in competences' self-assessments between the first and the second survey. Figure 3 displays BPOM competence change dynamic between course stages (where a designation "BPOM 2-1" shows changes between the second and first self-assessments within university's learning portal "ORTUS", the designation "BPOM 3-2" - changes between the third and second self-assessments, etc.; and competence graphs are displayed in the form of five sets based on initial self-assessment results, similarly to Figure 2). Some students overleapt themselves, some others were too circumspect. In both cases the second survey after initial course module shows adjusting of initial assumptions. Learners had been getting an impression about the course. Their self-evaluation took more and more precise lines as they approached final stage of the course. Almost all students had some stoppage in competence development at the course stages from the fourth to the sixth self-appraisal phase. This might be explained by a fact that at these modules learners have faced a problem of dealing with financial calculations to develop their business plan which most of them did not faced before. Activities within ePortfolio system, i.e. group-working, getting feedback and critical thinking notes from ePortfolio group participants, reflecting on them, and refining own business ideas, allowed students make necessary improvements in stages from the sixth to the eighth self-assessment phase.

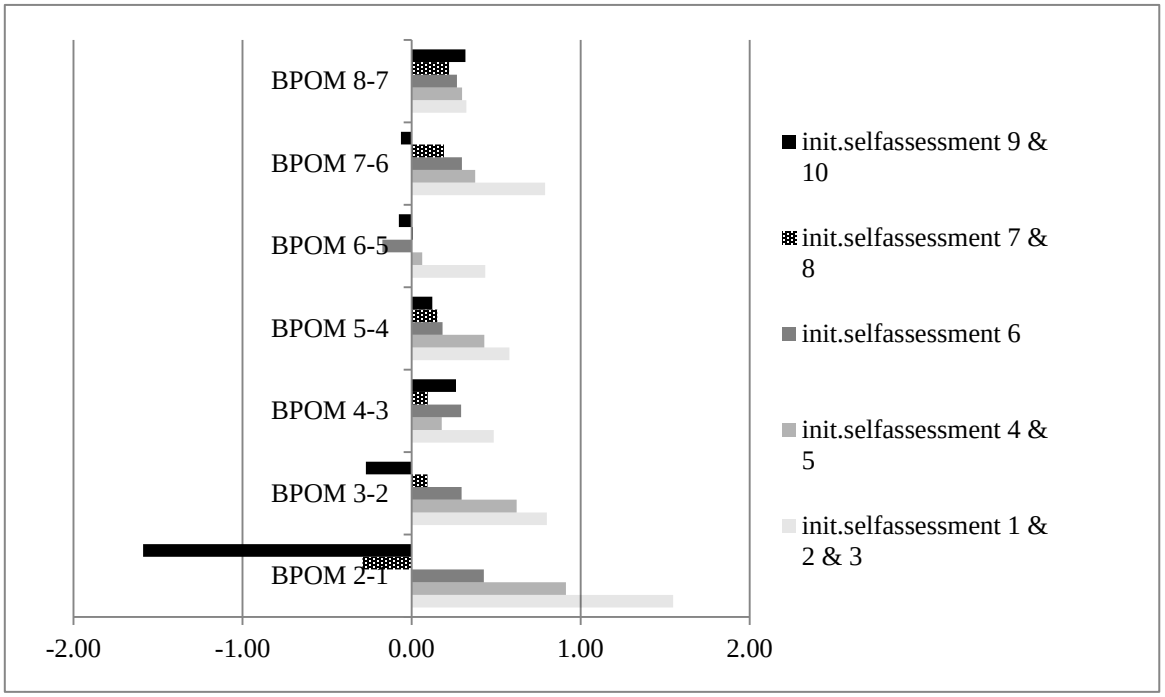

Figure 3. Competence change dynamic between course stages.

At the same time, investigating competence development process regarding initial self-assessments, we have not found any correlations between self-assessments, on the one hand, and achieved competence levels, test and exam results, on the other hand. Correlations were found when learners' activities within ePortfolios were analysed against learning outcomes (Gorbunovs, Kapenieks, Kudina, 2012). It was found that there was direct correlation between students' activities within ePortfolio group, accomplished tasks there and login files on the one hand, and their competence levels' improvement and better learning outcomes in the form of improved accomplished homework and exam results, on the other hand (for example, Figure 4 where learners results are shown depending on their activity level within ePortfolio: active users – 4 & 5 accomplished group-working tasks, moderate users – 2 & 3 tasks, and inactive users – 1 or 0 tasks). Collaborative group-working spirit, responsibility for own results and group members' progress allowed more active participants to feel themselves also more confident (Table 1) which led to draw parallels between their activities within ePortfolios and final self-assessment results.

Introduction of additional new educational methods and tools implemented during the course, noticeably improved competencies: both the theme's involving and related ones. Working in teams within ePortfolio framework aided students to achieve crucially another level of learning. Critical

thinking abilities and skills, reflection on feedback, tutors' and peers' support, recasting of essays and recalculating of financial arguments, as well further improvement of own business ideas – this all enhanced BPOM competence development.

Among those students, who did not participate in any of ePorfolio collaborating group-work activities, there were a few learners, who improved their homework final versions at different stages of the course. They accessed corresponding group ePortfolio work-space and acquainted themselves with their ePorttfolio group members' feedback. It made possible to detect errors and improve their homework versions if needed (in Table 1 – a ratio of ePortfolio login files with number of improvements).

Table 4

Impact of activities within ePortfolio system on learning outcomes

Accompl. tasks within ePortfolio	Initial self-assessm. (on aver.)	Final self-assessm. (on aver.)	1st test (on aver.)	Exam (on aver.)	No. of improved work (on aver.)	ePortfolio login files (on aver.)
5	5,67	7,83	7,65	8,75	2,21	10,39
4	5,59	7,96	7,47	8,94	2,38	10,38
3	5,45	7,45	7,78	8,39	1,83	7,78
2	5,39	7,71	7,28	7,47	1,24	5,06
1	5,69	7,19	7,43	7,38	0,71	2,62
0	5,60	7,15	7,19	5,94	0,18	2,12

Pursuant to correlation analysis related to initial self-assessment results it might be stated that learners could not make objective appraisals about own level of competencies. At the same time, it was observed that learning of one course theme had the impact on others. Both questions tailored in common consideration raise a necessity to enrich already tested experimental ePortfolio system prototype with artificial intelligence tools. These extra tools might cover the impact issue of mastering of definite theme (or its learning objects) on an acquisition of other course themes (or its learning objects).

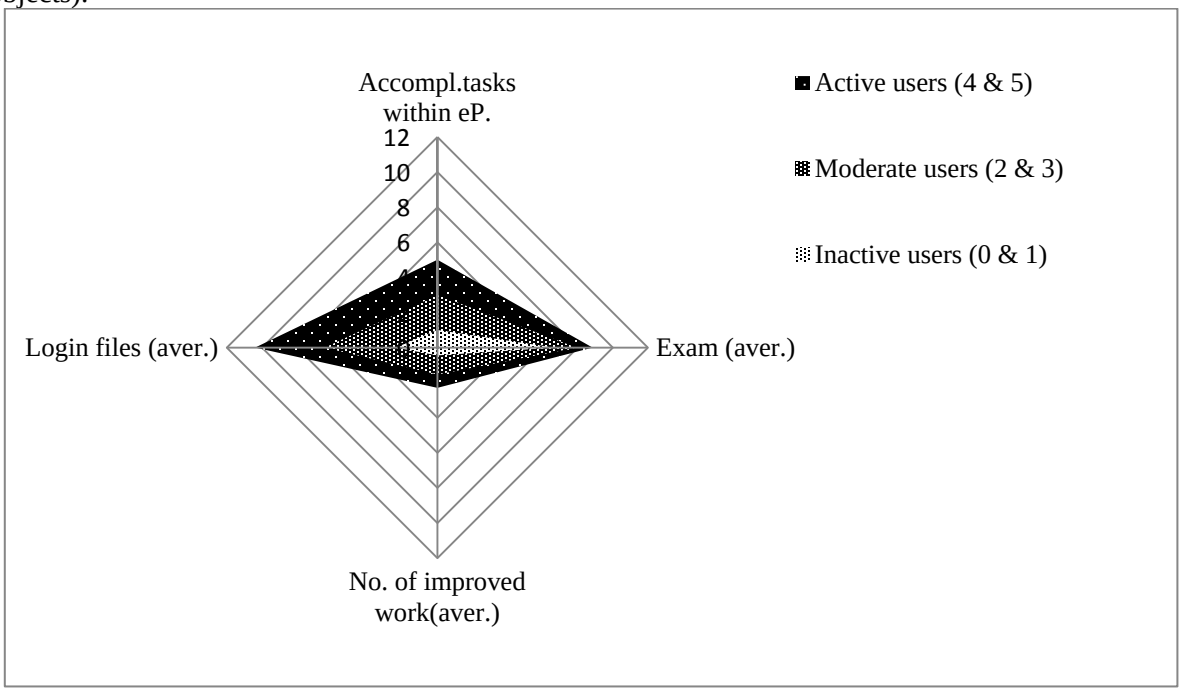

Figure 4. Correlative analysis of activities within ePortfolio.

Competences might be represented as the sets of clusters containing a number of sub-competences (Gorbunovs, 2011):

$$a = \{a_1, a_2, a_3, \ldots, a_n\} \quad (1)$$

where a – considered competence;
$a_1, a_2, a_3, \ldots, a_n$ – sub-competences.

This set of competences might be reformulated also in a matrix view. Similarly, each course theme and its learning object might be conceived as the set or matrix of corresponding weighted values. An acquisition of one theme or learning object leads to formation of the new matrix of competencies. For instance, in BPOM course case, where we defined seven course related competences, "m" theme's learning objects weighted values and obtained new set of competences might be seen as:

$$\begin{vmatrix} a_1 \\ a_2 \\ a_3 \\ a_4 \\ a_5 \\ a_6 \\ a_7 \end{vmatrix} \times \begin{vmatrix} m_{11} & m_{12} & m_{13} & m_{14} & m_{15} & m_{16} & m_{17} \\ m_{21} & m_{22} & m_{23} & m_{24} & m_{25} & m_{26} & m_{27} \\ m_{31} & m_{32} & m_{33} & m_{34} & m_{35} & m_{36} & m_{37} \\ m_{41} & m_{42} & m_{43} & m_{44} & m_{45} & m_{46} & m_{47} \\ m_{51} & m_{52} & m_{53} & m_{54} & m_{55} & m_{56} & m_{57} \\ m_{61} & m_{62} & m_{63} & m_{64} & m_{65} & m_{66} & m_{67} \\ m_{71} & m_{72} & m_{73} & m_{74} & m_{75} & m_{76} & m_{77} \end{vmatrix} = \begin{vmatrix} b_1 \\ b_2 \\ b_3 \\ b_4 \\ b_5 \\ b_6 \\ b_7 \end{vmatrix} \quad (2)$$

where $a_1, a_2, a_3, a_4, a_5, a_6, a_7$ – person's initial competences;
$m_{11}, \ldots, m_{77}$ – course "m" theme's (learning objects') weighted values;
$b_1, b_2, b_3, b_4, b_5, b_6, b_7$ – person's competences after the "m" theme's acquisition.

It might be assumed that particular theme or learning object initially ought to be weighted by assigning of appropriate rate to the theme or learning object. Based on learning outcomes after each course module in a form of tests, assessments and exam results, it could be useful to match them against initial (or previous) given rate and correct if needed. Such rate assignment possibilities ought to be studied further to make ePortfolio system smarter and enhance competence development.

Conclusions

An application of ePortfolio system substantially allows improving learning outcomes and enhancing competence development. Engaging collaborative environment offered by the system improves system users' confidence, as well their critical thinking abilities and skills.

To ensure more efficient ePortfolio system operation, there is the necessity to work out additional smart instruments in the form of artificial intelligence tools. They would allow analysing the usability of utilized learning objects in the course, and offering learning objects according to existing and required competencies within common system.

Acknowledgments

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THE PARTICIPATION OF STUDENTS (FUTURE TEACHERS) IN CIVIL SOCIETY ORGANIZATIONS – A WAY OF DEVELOPING CITIZENSHIP COMPETENCIES

Inese Jurgena[1] Dr. paed., **Jānis Gedrovičs**[2] Dr. chem.
Riga Teacher Training and Educational Management Academy, Latvia [1, 2]
inesejurgena@inbox.lv[1]; janis.gedrovics@rpiva.lv[2]

Abstract: At the beginning of the 21st century, a new situation has developed in Latvia as a result of social and economic transformations. Along with the formation of civil society, issues concerning the social, legal, and spiritual life of student population have come to the foreground. There can be observed new features of behavioural culture and standards of thinking, readiness to live in a democratic environment. The young generation students perceive freedom and equality as necessary preconditions for varied activities, as an opportunity for individual's self-actualization. Civil society organizations are important institutions with regard to the development of citizenship competencies. The article is devoted to the development of citizenship competencies in civil society organizations - a topical issue in the present-day situation of social and cultural life in Latvia. The purpose of the article is to analyse students' participation in civil society organizations focusing on the development of their citizenship competencies. Materials and methodology: the theoretical method- the analysis of academic literature, documents and studies; the empirical method – students' survey.

Keywords: youth policy; citizenship competency; civil society organizations.

Introduction

The awareness of youth policy as an area concerning civil society and democratic policy is gradually developing and strengthening in Latvia. The youth policy is an aggregate of purposeful activities promoting the comprehensive development of young people as full-fledged members of society thus stimulating their social inclusion and the development of citizenship competencies.
In the last years, Latvia has managed, first, to streamline legal regulations concerning the youth policy; second, to develop and implement effective models of mutual cooperation (inter alia by attracting young people as partners); third, to develop and maintain an effective model of communication understandable for all subjects of the policy, which fulfils both informational and communicative (feedback) functions.

In this respect, a very important factor has been the transition from the principle that the youth is a target group or a subject to the principle that the youth is a partner both in the policy development and implementation, from work with the youth to collaboration with the youth. This trend in the youth policy activates the participation of young people and their civic responsibility, as well as provides better opportunities for education and employment in general.

The most essential national document determining the youth policy in Latvia is *Youth Law*. Its purpose is to improve the quality of life for young people aged 13 to 25 promoting their participation in decision-making and social life, as well as supporting youth work. The "Youth Law" defines the parties involved in the implementation of the youth policy and their competency in the field of this policy, youth participation in the development and implementation of the youth policy, as well as the key principles for allocating finance for youth initiatives, their participation in decision-making and social life, as well as youth work (Jaunatnes likums…, 2008).

According to this law, youth work is a set of planned youth-oriented practical measures, which ensure the implementation of the youth policy, the development of value-orientations of young people and the consolidation of universal human values with a particular emphasis on the possibilities of developing citizenship competencies.

On the other hand, the purpose of *Youth Policy Guidelines 2009 – 2018*, another long-term policy planning document for the next ten years, is to achieve the implementation of a harmonized youth policy and its coordination by identifying the priority directions of activity and policy results, working out the vision of development in connection with the quality of life of young people and the

implementation of the youth policy. This document also highlights the key issues that need to be dealt with in the field of the youth policy (Jaunatnes politikas pamatnostādnes …, 2009).

The key issues in *Youth Policy Guidelines 2009 – 2018* concerning the youth are:

- the low participation of young people in social activities and youth organizations;
- lack of up-to-date information about the opportunities of participation at the state level;
- an important factor promoting youth participation is the financial support for the implementation of youth initiatives. In Latvia, the financial support granted to youth initiatives and youth organizations is insufficient;
- there is no uniform classification of youth organizations and no uniform mechanism for the registration of youth organizations;
- there is no methodological and financial support for providing the work of student self-governance in educational institutions; as a result, their cooperation at the regional, national, and international level is not facilitated;
- the youth opinion concerning their possibilities to influence the decisions of local and national governments is critically low, which does not indicate that there is a developed practice of youth involvement before making decisions which concern the youth policy (Jaunatnes politikas pamatnostādnes..., 2009).

In order to tackle the issues outlined above, there has been developed *The Youth Policy State Programme for the Years 2009 – 2013* (Jaunatnes politikas valsts programma..., 2009). This programme is mainly focused on the development of youth centres in local governments. However, one of the issues concerning the youth policy that needs to be dealt with in Latvia is the advancement of citizenship education with a particular emphasis on youth participation and the efficient use of leisure time, active involvement of young people in decision making and in various youth organizations, youth initiative groups, clubs, etc.

Nowadays, many institutions of higher education, being viable, self-developing, self-organizing, and self-assessing systems of educational environment, learning both from their own experience and that of other institutions, are expanding their functions and increasing their target audience, thus becoming educational environments for the whole society. In the current crisis situation, this trend in the work of the institutions of higher education is connected not only with the attempt to preserve their own viability and secure prospects for the future, but also with the humanistic approach in their activity taking care of the sustainable development of young people.

According to the concept *Education for Sustainable Development* adopted by the UNESCO (The UN Decade of Education for Sustainable Development 2005 – 2014, 2007), education for sustainable development is a multi-disciplinary, lifelong process, which includes the extensive learning experience of participation both in the formal and informal environment of the programme.

Nowadays, the mission of the institution of higher education is to ensure the viability of an individual in the changeable environmental conditions and sustainability in the future perspective. The readiness of the society to change, perfect itself and develop depends to a great extent on how creative, rich in initiative, and ready for change the institution of higher education is. The status of the institution of higher education as the guarantor for sustainable development of the community also depends on the fact whether the institution of higher education is democratic and whether it ensures the implementation of citizenship values and the development of citizenship competencies of would be specialists in practice. In this respect civil society organizations, clubs, associations and non-governmental organizations become the environment for students' extracurricular activity as the form of students' self-realization and the opportunity for developing their citizenship competencies.

In order to accomplish the education of active citizens, it is necessary to create a particular social space (social organizations, societies, associations, clubs, etc.), thus creating pre-conditions for developing an active civic position of the youth and individuals' self-actualization. At present, various civil society organizations experience a real boom as the forms of social education. Various forms of student interest clubs are also very popular. The issues concerning student clubs are becoming increasingly important in view of the necessity to develop the citizenship competencies of would be specialists.

According to G. Kotova, *a club is the form of education which refers to the youth associations of different age-groups; it is based on common interests and needs, thus creating an opportunity to involve young people in socially significant, varied activities; within the framework of club activity, there is created a uniform system of value-orientations and uniform organization of individuals' social experience.* (Котова, 2010).

Promoting the activities of student interest clubs in the society increases the opportunities for students' self-actualization and the development of citizenship competencies based on the ideas of humanistic psychology concerning the realization of human potential. Student societies and clubs facilitate their involvement in social life, advance the effective and creative implementation of students' social functions as members of society and prepare students for self-development. (Studentu sociālie…, 2009).

If we regard the functioning of student clubs in the institutions of higher education as an essential factor of students' self-actualization having an impact on students' socialization, it has to be concluded that students' extracurricular activity is of the same importance as their curricular activity.

When analysing and evaluating the role of Latvian civil society organizations in the development of students' citizenship competencies, their current problems and difficulties, it has to be noted that in the recent years several studies have been conducted in Latvia concerning students' participation in various youth organizations and clubs. These studies provide valuable material characterising the social life of Latvian students. The documents concerning international and national processes in higher education (e.g. the Bologna Process, Lisbon Treaty) consider students as the basis for the formation of knowledge society. It is important to study students' opinions in order to evaluate the existing education policy and to develop the strategy of higher education.

In 2009, the marketing and public opinion research centre SKDS carried out a study involving 2000 full-time students from state-funded and private institutions of higher education in order to analyse students' participation in youth organizations. According to the study, 66.1 % of the respondents were not involved in these organizations. Most often the respondents mentioned participation in students' self-governance – 17.6%. More than 5 % of those questioned mentioned a student choir (7.3%), a sports club (6.7%), but 7.1 % indicated that they were involved in other student interest clubs.

The purpose of the article is to analyse students' participation in civil society organizations focusing on the development of their citizenship competencies.

Methodology

The study conducted by the authors of the present article was carried out in 2011-2012 by surveying the 1st year students of Riga Teacher Training and Educational Management Academy including both full-time (2011 – 106 female and 9 male students; 2012 – 103 female and 7 male students) and part-time students (2012 - 83 female and 3 male students) enrolled in the respective study groups in the 1st semester (September-October), i.e. at the moment when the social status of the respondents had changed considerably due to commencing their studies. The respondents were offered a survey questionnaire designed according to the principles of Likert-type scale and containing the following questions:

1. What youth organizations do you participate in? (13 alternatives were offered; the response categories: *do not participate– occasionally participate – often participate – always participate*)
2. Why do you participate in the social organizations, societies, clubs? (11 alternatives were offered; the response categories: *unimportant – marginally important – important – very important*)
3. What, in your opinion, are the main forms of students' participation in the processes of social change? (6 alternatives were offered; the response categories: *unimportant – marginally important – important – very important*).
4. What means of communication ensure participation (exchange of information) (8 alternatives were offered; the response categories: *never – seldom – sometimes - often*).

5. What possibility do you personally have to influence the decision making processes in Latvia? (The categories of responses: *cannot influence – do not know – partly influence– influence*).

Besides, in all the questions except No5 the students were given an opportunity to offer their own answers to the given questions.

In order to process the data contained in the questionnaires, the responses were coded from 1 to 4, fed into the computer and analysed by means of descriptive statistics. When processing the responses to questions 3 and 4, there were used the advantages offered by Likert scale, i.e. the calculation of the mean value M_i, where $1 \leq M_i \leq 4$. If $M_i = 2.5$, it is the *average mean value* in the whole interval ($M_{\underline{aver}}$), and the absolute value of each separate M_i characterises the deviation of the total value of the whole group or subgroup of respondents from the average mean value. For instance, at $M_i > M_{aver}$ it can be concluded that the group of respondents generally supports the respective valuation (factor) or evaluates it as important, contrary to the situation when $M_i < M_{aver}$, i.e. in this case the sample generally does not support the respective factor.

The processing of the questionnaires was done using the data processing software SPSS, version 20.0., as well as the programme Excel.

Results and discussion

The study shows the minimal involvement of the students in various civil society organizations at the initial stage of their studies (1st semester). For instance, the overwhelming majority of both full-time and part-time students are not involved in such civil society organizations as the club "The House – Youth for United Europe", the European Movement in Latvia, the Latvian Youth Council and others (99.1% chose the response *do not participate*), or their participation in these organizations is occasional.

The activity is a little higher with regard *to Christian organizations* and events (2011 – 3 students; 2012 – 16 students, including 6 part-time students). Students have a relatively higher interest in the activity of *non-governmental organisations* (2011 – 6 students; 2012 – 24 students, including 11 part-time students). Students' participation in *sports organizations*, which shows an increasing trend, has to be especially noted: in 2011 only 1 respondent was involved in such an organization, but in 2012 the number was 15, including 13 part-time students.

The students demonstrate the relatively highest rate of involvement with regard to cultural organizations. For instance, among those surveyed in 2011, 17 respondents or 14.8% of the sample were involved in *dance clubs*, while in 2012 the number of such respondents was 25 (22.7%) out of the full-time students and 22 (25.4%) out of the part-time students questioned. Among other cultural organisations, there has to be noted participation in *choirs and orchestras*; however, the number of such students does not exceed 2.3-2.7% in each subgroup.

Involvement in the activity *parents' forum* is also noteworthy – among full-time students only 2 respondents indicated it in 2011, while in the group of part-time students 7 respondents (8.1% of the whole sub-group) mentioned participation in this activity.

It has to be noted that according to the responses students' participation in political organizations is occasional – contrary to their participation in Christian organizations and cultural interest clubs, where most of the participants have chosen the responses *often participate* or *always participate.* This leads to the conclusion that for the development of citizenship competencies the activity of the institutions of higher education aimed at students' involvement in organizations dealing with the matters of national importance has to be particularly encouraged.

Involvement in civil society organizations can be both passive (*attendance of events*), and active (*membership*). Activity can be determined by various factors, which can manifest themselves with different intensity. For instance, in 2011, 57.8% of the respondents - full-time students - noted that satisfaction for doing socially significant work was *important* for them, while 12.8% marked it as *very important.* A year later, the percentage of the valuations *important* was a little lower (49.5%), while

the percentage of the response *very important* had almost doubled. In the group of part-time students, 70.7% have indicated that this factor is *important* for their participation in various activities, while 12.2% consider it as *very important*.

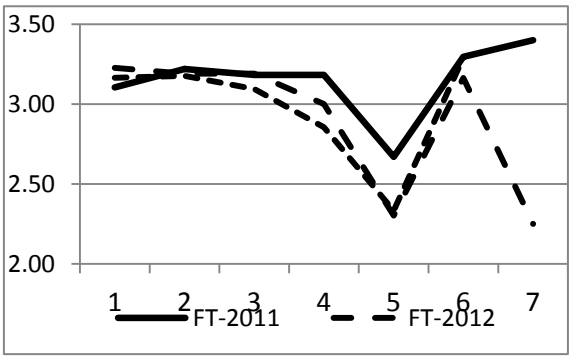

Figure 1. Evaluation of the most important forms of participation, 1≤ Mi≤4.

Notes: 1 expressing ideas and suggestions; 2 – participation in projects; 3 – assistance in organizing activities; 4 – collecting donations; 5 participation in rallies, street marches, protest demonstrations; 6 – participation in elections; 7 – other
FT – full-time students; PT – part-time students.

A very high rating can be observed for such motivating factors as *common activities* (52.5-58.5% of the respondents consider them as *important* and 18.3-25.3% as *very important* in different sub-groups of the sample, *an opportunity to establish new contacts* (56.4-59.4% - *important* and 26.7-26.7% - *very important*), *an opportunity to gain interesting experience* (46.5-50.0 – *important* and 38.0 – 39.6% - *very important*). The respondents of all sub-groups also appreciate the *opportunity to participate in the discussions concerning topical issues* (47.5-52.8 – *important* and 3.7-9.1% - *very important*).

In order to characterise the responses concerning the most important forms of participation, there was chosen the graphic representation (Fig. 1) which shows that generally students approve of all the 6 offered responses ($M_i > M_{aver}$), except *participation in rallies, street marches and protest demonstrations.* It also appears that part-time students rate some forms of participation lower that full-time students, except *participation in projects, participation in rallies and participation in elections.*

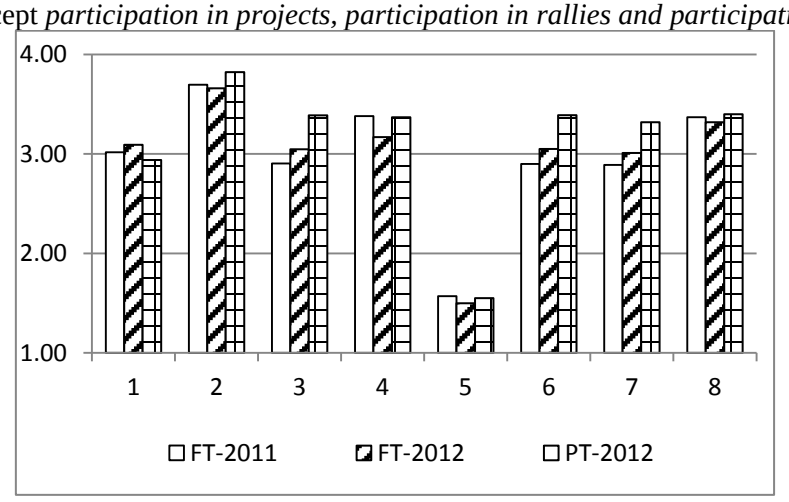

Figure 2. Evaluation of the means of communication, 1≤ Mi≤4.

Notes: 1 – meetings and workshops; 2 – information in the Internet; 3 – magazines; 4 – TV; 5 – fax; 6 – e-mail; 7 – telephone; 8 - e-environment
FT – full-time students; PT part-time students.

With regard to the means of communication ensuring the exchange of information and thus facilitating involvement in various civil society organizations, the views of all the respondents are very similar

(Fig. 2). Besides, the Internet is unanimously considered as the most important one by all the respondents.

Obviously, participation in civil society organizations is also affected by the personal attitude of each participant, which depends on the fact whether a particular individual is a passive observer, a good executor, or is able to influence the decision making. According to the results of the survey (Fig. 3), the part-time students have indicated more frequently that they can *partly influence* the decision making process, which exceeds the valuation of the full-time students in this response category by 1.5 times. It has to be admitted though that a relatively small number of the respondents are strongly convinced that they can actually influence the decision making process – about 3.6%.

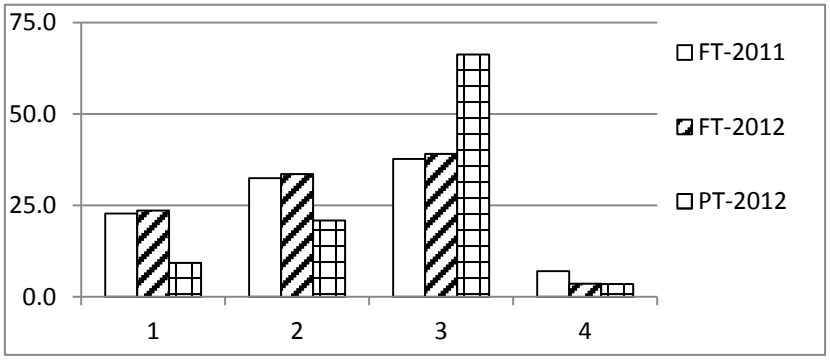

Figure 3. Personal ability to influence the decision making, percentage of the respondents.

Notes: 1 – can not influence; 2 do not know; 3 – partly influence; 4 – influence
FT – full-time students; PT – part-time students.

Having compared the responses of full-time and part-time students of 2012 concerning their personal ability to influence the decision making, it has to be concluded that the difference is statistically significant ($p<0,000$). Generally, it is an interesting fact, but not a very surprising one since part-time students have more life experience; some of them already work as educators and thus have to make independent decisions even though they sometimes concern just one form of pupils or a small group of children. Full-time students, 95% of whom are the secondary school leavers of the respective year, do not have such life experience, which manifests itself as a lower rating of their own ability to influence the decision making process.

Conclusions

- Nowadays, the institutions of higher education play an important role in the development of social consciousness and serve as the environment for citizenship education. One important subject of the educational environment is the aggregate of student clubs and associations, the main objective of which with regard to citizenship education is to prepare students for life in civil society by developing their creative potential and public administration skills, organizing leisure time activities, creating preconditions for meeting their communication needs, the realization of personal initiative and responsibility and the development of citizenship competencies.
- The system of higher education has the potential which makes it possible to educate a new type of specialists for a new social reality. The institutions of higher education are the structures where would-be professionals and active citizens acquire the forms of social participation not only in theory, but also in practice, are involved in them, and thus develop necessary character features, skills, world outlook, and citizenship competencies.
- Varied civil society organizations promote the active participation of young people in decision making and social life, broaden students' opportunities to gain knowledge and acquire skills, as well as spend their free time in a productive way and implement civic activities.
- So far, the participation of 1st year students – future teachers – in various civil society organizations is insufficient for the development of citizenship competencies even though

there is noticeable potential for their involvement in such organizations, which can be inferred from the positive responses of those surveyed concerning the motives of participation, their ability to influence decision making and other factors.

- Insufficient involvement in various organizations and clubs can be explained by the acquisition of a new social status – *a student* – and starting new life activity. There can be observed a relatively higher students' involvement in cultural organizations rather than in social and political organizations, clubs and similar activities.

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CRITERIA OF SELECTING LITERARY WORKS FOR PROMOTING THE LEARNERS' READING MOTIVATION

Aija Kalve[1] Mag. paed.; **Ilze Stikāne**[2] Dr. philol.
Riga Teacher Training and Education Management Academy[1], Latvia; University of Latvia[2], Latvia
aija.kalve@way.lv[1] ; Ilze.Stikane@lu.lv[2]

Abstract. The article draws the readers' attention to the problem of the possibilities of selecting literary works as the teaching/learning content for promoting the reading motivation of the learners of Grade 9. The article reveals the criteria of selecting literary works for both selection of literary works and for facilitating the learners' interest in reading and learning the esthetical and aesthetic values. Special attention is paid to the learners' attitude to contemporary literary works, which discuss themes topical for today's young people , but the inclusion of which in the teaching/learning materials cause perplexity in some part of adults. The article emphasizes ideas of the specific character of perceiving a literary work as a work of art and presents problems connected with the vulgarization of literature. The article also reveals and analyses the learners' interests and needs for developing a relevant learning content, the learners' opinions, expressed in the interviews, their reading motivation and their preferences in reading. The study facilitates the understanding of the necessity to develop the content of teaching/learning literature corresponding to the learners' interests and needs, which in their turn motivate the learners' reading motivation.

Keywords: literary interests, motivation, attitude, teaching/learning content, perception of fiction.

Introduction

The problem of what the content of teaching/learning literature should be like has always been topical, yet is has become more acute in the society of Latvia in the year 2012, when there was going on a wide discussion, in which participated representatives of different spheres of the society: the authors of teaching aids, publishers, reviewers, teachers, psychologists, writers, parents, employees of the Ministry of Education and Sciences. The central problem moved forward was, whether it is permissible or not to include in the content of learning works, which touch upon the so-called taboo themes, as alcoholism, gambling, drug addiction, prostitution, death, etc. A part of the society express their anxiety that reading such works of art can urge the young people to make the wrong choice. Another part of the society stress that literature is a force of art inciting one think of the sense of life, promoting the comprehension of values. It is quite clear that literary works revealing the themes and solving their topical problems of the young people address them more vigorously.

The above mentioned pending matter has urged the authors of the article to continue the studies of the learners' literary interests, reading habits and motivation within the context of the learning content of literature.

An expert group of high level specially selected by the European Commission stress in their report "Teaching Reading in Europe: Contexts, Policies and Practices" that the European Union has to evaluate carefully the inhabitants' writing skills, reading skills and the possibilities of improving the perception of the written text. The results of the investigation of the international student assessment program of the learners' reading competence in 2009 (*Programme for International Student Assessment of the Organisation for Economic Co–operation and Development* (OECD PISA)) show that one fifth of the young people, age 15, of the European Union lack basic skills of reading and writing, that is the reason why it is difficult for them to find work and thus there increases the risk of the growth of poverty and social alienation (Geske, Grīnfelds, 2010) . The Council of Ministers of the European Union have put forward the common aim to diminish the proportion of the youth of age 15, who have poor writing skills, reading skills, skills to perceive the written text from 20% to 15% by the year 2020. (Teaching Reading.., 2012).

In Latvia in the year 2009, as the PISA investigation testifies, there were 17,6 % of learners with poor reading skills and few learners who could cope with the reading tasks of the highest difficulty level.

(Geske, Grīnfelds, 2010). The investigation reveals also another problem, which is closely connected with the achievements of reading – a negative attitude to reading in their leisure time: "more than half of the learners of Latvia read less than half an hour per day or they do not read at all (30%)." (Geske, Grīnfelds, 2010).

The results of the investigation reveal that the question of the development of reading motivation is connected with the promotion of reading motivation in a vast context and it is done in different ways – in the family, school and society. Motivation is "motives in their entirety, which promote and substantiate the learners' activities, action, conduct, relations" (Beļickis, Blūma, 2000). It is the key precondition of the learners' achievements in learning: "Motivated learners make choices to stay engaged and to persist because of their interest and the expectation of outcome." (Wiesen, 2001).

In the context of reading it is necessary to stress especially the connection of motivation, interest and attitude. If interest is defined as an active attitude to activities, objects, phenomena conditioned by need, experience and choice (Beļickis, Blūma, 2000) then interest in reading finds its expression as a positive attitude to books and promotes one's reading experience: "In a general sense, interest is essentially synonymous with attitude. One's interest in reading is the same as one's attitude toward reading. In a specific sense, the term is usually expressed in the plural and refers to a topic." (Guthrie, Wigfield, 2000). These specific interests are also called literary interests, or the readers' interests, and they can be as multiform, as multiform people are, and at the teenagers' age they determine to a great extent the urgencies in the society, the teenagers' comprehension of values, advertisement and fashion.

The connection of motivation with attitude is a complex, these conceptions are difficult to separate because they usually overlap. Motivation is always connected with man's tendency to act, to achieve one's aim: "A positive attitude, under the right circumstances, contributes to intrinsic motivation. A negative attitude, in contrast, tends to inhibited motivation, although this tendency might be obviated through the manipulation of intrinsic factors." (Conradi, Jang, 2012).

Within the context of the promotion of reading an appropriate place should be allotted to the context of literature learning and the criteria of its choice. The acquaintance with literature in a wider sense is involvement of the personality in the stream of culture, in which not only knowledge and skills occupy a significant place but also the revelation of the values of life and art. (Rudzītis, 2000). In a narrower sense reading fiction in the learning process is getting acquainted with books of different kinds and genres, in order to get to know literature corresponding to the compulsory components of the subject of literature: literature as an art of words, the perception of a literary work, creative activity, literature as part of culture. (Noteikumi par.., 2006).

Taking into consideration the factors mentioned before the choice of the content is determined by the following criteria:

1) a high artistic value of the book;
2) the diversity of genres, styles and themes;
3) the potential of the updated values;
4) the potential of the promotion of the dialogue of cultures and tolerance;
5) conformity with the topicality of the epoch;
6) conformity of the literary works with the peculiarities of the learners' age groups;
7) conformity of the literary works with the interests and needs of the reader;
8) respect for the learners' sex and their ethnical differences.

In the present situation, when in Latvia one comes across insufficient reading skills of the teenagers, and there is spreading a negative attitude to reading in general, special attention should be paid to **the conformity of the literary works with the topicality of the epoch**, **peculiarities of the age groups and the interests and needs of the reader.** When analyzing the content of the text books on literature the conclusion can be drawn that too little attention has been paid to the above mentioned criteria. If the learners feel that literature is useful to them and it corresponds to their needs, they are willing to consider themselves to be readers and they read. (Kasten, Wilfong, 2005).

Themes and topical problems, significant to the youth, are found both in classical and contemporary literature, yet a reasonable proportion should be observed in the choice of the content of classical

works and the latest works of literature. If not enough attention is paid to literary works on contemporary themes the learners can be disillusioned that literature is not connected with the time in which they live: "If we do not ensure the children with an environment of **truthfulness**, they will soon lose interest in our books, our arts, and learning at school [..]. Remember that the children and the teenagers react to life more truthfully than we." (Ziedonis, 1988). The authors stress that the task of literature as an art is to speak with the help of the means of art about the values, to influence, to create emotional experience and, as a result an idea about behavior models in serious, complicated situations, besides, a work of art does not reflect life directly, but through characters of art.

Materials and Methods

The following methods were used when studying the learners' reading habits, motives and literary interests:

1) analysis of theoretical literature,
2) an interview with casually chosen learners of Grade 9 (75 learners) of 5 Riga schools.

The interview was organized in September and October of the year 2012, and 45 girls and 30 boys participated in it.

Results and Discussion

The authors of the article have analysed the reading motives of learners of Grade 9. The learners' answers to the question **"Why do you read or do not read books of fiction?"** confirm once again that the motivation of reading fiction is comparatively low. (Figure 1).

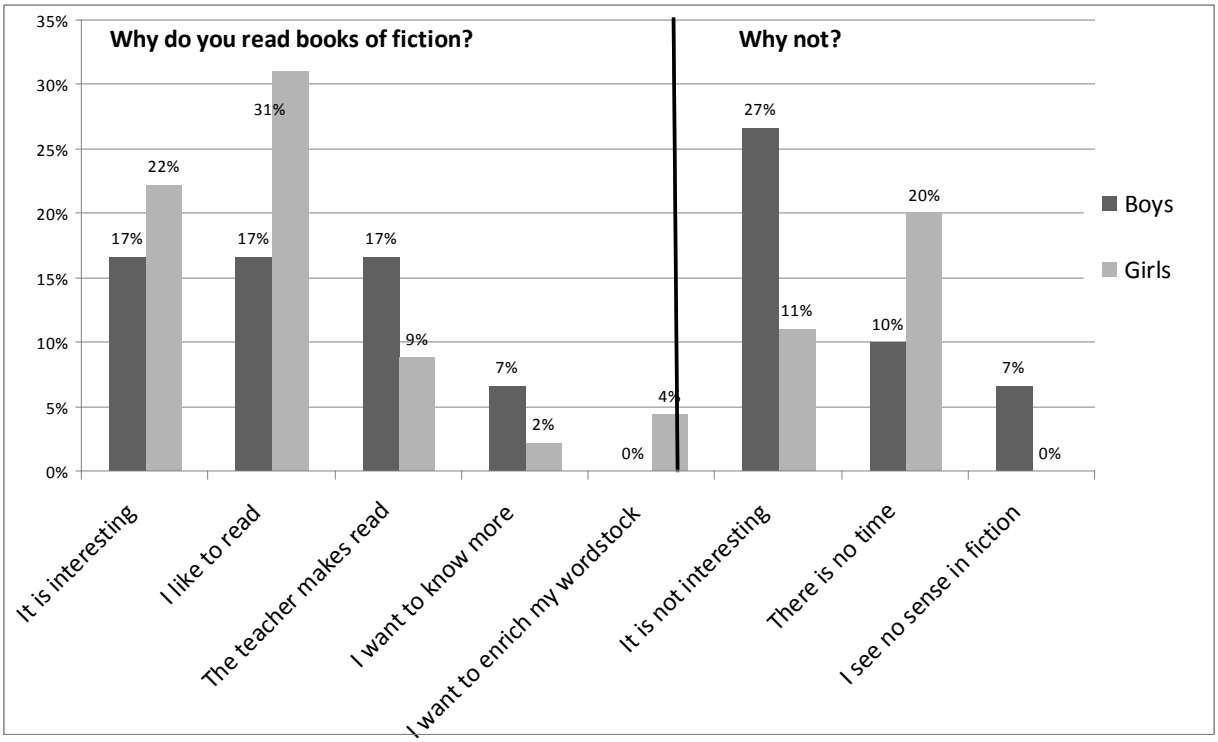

Figure 1. The learners' answers to the question "Why do you read or do not read books of fiction?".

The chart shows that only 69% of the girls and 57% of the boys are interested in reading. Some of the answers show a rather positive attitude to reading:

- "Books take you to another world, help you get away from everyday life" (a girl's answer);
- "Reading is my hobby" (a girl);
- "It is a possibility to live another life in one's own" (a girl).

The learners (31% of the girls and 43% of the boys) give many reasons why they do not read books of fiction out of school. The great number of the answers "It is not interesting", as well as several other answers draws our attention:

- "There is no time and books are not close to my heart" (a girl),
- "There is no time and I prefer the Internet" (a girl),
- "I am short of time, because I have a great load – trainings, hobby groups, tests" (a girl),
- "Boring, fiction does not attract me" (a girl),
- "It seems to be a loss of time" (a girl),
- "I do not know yet how to find a suitable book" (a girl),
- "I do not read. To my mind one has to read serious books, from which you get knowledge, but not fairy-tales" (a boy),
- "I see no sense in fiction" (a boy),
- "I cannot summon my strength to take a book and start reading it" (a boy),
- "I do not read books, but I read comic books on the computer" (a boy),
- "Books do not seem to be as interesting as magazines/journals" (a boy),
- "I do not read fiction. I am an adherent of encyclopedias and journals of popular sciences" (a boy).

Knowing that the learners' interest in reading fiction is developed to a great extent by learning literature at school, the fact that many learners of Grade 9 answer that they are not interested in fiction and reading it is senseless causes serious food for thought. The conclusion can be drawn that the reason is to be sought in the content of learning literature and in the methods.

The learners' answers to the question "The fragment of which book would you like to include in the textbook of literature?" show that

- considerable part of the learners – 38% of girls and 57% of boys cannot name a single work of art, which they would like to read;
- the learners do not name a single work of art of Latvian classical literature, and they name only two books by contemporary Latvian authors – "Patricia's diary" ("Patrīcijas dienasgrāmata") by Anna Skaidrīte Gailīte and "Krista" by Ieva Brice;
- the learners find the contemporary fantasy and science fiction books, which are popular in the world, current , for example, the parts of "Harry Potter" by J. K. Rowling (chosen by 6 girls and 7 boys), "The Hunger Games" by Suzanne Collins (2 girls), "Twilight" by Stephanie Meyer (2 girls), "Game of Thrones" by George R.R. Martin (1 girl and 1 boy), "Erebos" by Ursula Poznanski, "The Chronicles of Narnia" by Clive Staples Lewis, "Beautiful Creatures" by Kami Garcia and Margaret Stohl;
- the learners read contemporary detective stories – there are mentioned "The Girl with the Dragon Tattoo" by Stieg Larson and "Kingdom Come" by Tim Green;
- the learners are attracted by real life depicting prose by modern writers – "Between Shades of Gray " by Ruta Sepetys ,"One Day" by David Nicholss, "Obsession" ("Hörigen") by Brigitte Blobel, "White Oleander" by Janet Fitch;
- there are also mentioned several classical works of world literature – books by Agatha Christie (5 girls, 1 boy), "Sherlock Holmes" by Arthur Conan Doyle, "The Children of Captain Grant" by Jules Verne, "Le Comte de Monte-Cristo'" by d'Alexandre Dumas , "The Good Soldier Švejk" by Jaroslav Hašek, "The Headless Horseman" by Thomas Mayne Reid, "Robinson Crusoe" by Daniel Defoe, "Gone with the Winds" by Margaret Mitchell, "Romeo and Juliet" by William Shakespeare, "The Black Arrow" by Robert Louis Stevenson.

The learners' answers confirm the ties among reading motivation, interest and attitudes - the learners, who admit that they do not read or read very seldom, cannot name a single particular book, which they would like to read. Here spring up a number of problems: the reader's negative experience → unwillingness to read → inability of finding a book, which rouses interest → disengagement in reading → the conclusion that reading is senseless. There are several causes of the experience of a negative reader – the attitude to reading in the family and the surrounding society, insufficient reading skills, the content of learning does not rouse the learner's interest and the teacher's insufficient skills to involve the learners in reading.

The choices of the learners are indicative of the learners' wish to read in the literature learning material principally works of fantasy and books of fantasy genres, but the readers' experience is

sufficient, in case there is motivation, and their poor reading skills would not be an obstacle to read very bulky books. It should be stressed that in fantasy literature "the main function of the hero is the transition from ignorance to knowledge, from immaturity to maturity, simultaneously going through one's personal initiation and the salvation of the world. [..] In the works of the fantasy genre prevail the so-called not typical character of the hero, which is not typical of a myth but of a fairy-tale – it is undistinguished and commonplace, but he is placed in the role of the hero of a myth or an epic hero, who has been trusted the hero's functions – salvation of the world and who successfully accomplishes it, thus synthesizing the mythical and the real in the reader's consciousness." (Simsone, 2010). Yet, part of the teachers of literature does not consider fantasy books to be high-quality literature. However, the learners' positive attitude and the value-guided potential of the fantasy genre make it possible to draw the conclusion that this genre should be granted a greater place in the content of learning literature.

The fact that the majority of the fragments of the before mentioned world classical literature have been included in the literature reading aids makes us draw the conclusion that learning literature has favored the acquaintance with them on a wider scale. It is clear that the books mentioned before belong to works of the genres (adventures, detectives) and the themes (people's relations, friendship, love), which are nowadays topical among the youth.

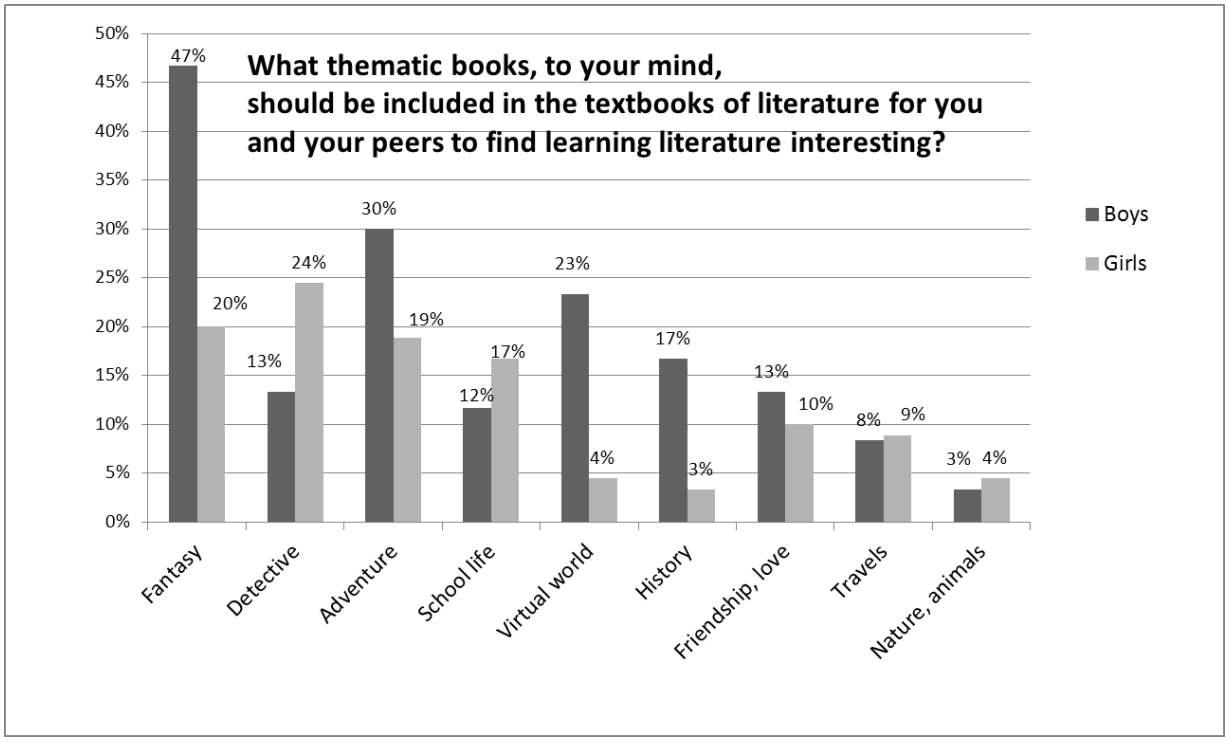

Figure 2. The themes of the books, which the learners prefer.

To a great extent the learners' literary interests, mentioned before, are also confirmed by the learners' answers to the question **"What thematic books, to your mind, should be included in the textbooks of literature for you and your peers to find learning literature interesting?"** with the given variants of answers – fantastic events, detectives, the virtual world, adventures, friendship, love, school life, history, travels, nature, animals, another variant. (Figure 2).

The results show that the most popular themes among the boys are fantastic events, adventures, the depiction of the virtual world and books on history. The girls in their turn would prefer reading detectives, books on fantastic events and school life. The results of the interviews break the stereotype that the girls' favorite themes are feelings – friendship and love. This investigation proves that the fact, stated in the investigation in the year 2011, and which said that the girls' literary interests were to a great extent connected with detective and adventure themes, is not a matter of chance. (Kalve, Stikane, 2012). The results confirm that both the girls and the boys are still interested in the depiction of

fantastic events and adventures. The interest is still kept up by vast offers of literary works – mainly translations (for example, the series of "The Mortal Instruments" by Cassandra Clare, "Eragon" and "Eldest" by Cristopfer Paolini, "The Passage" by Justin Cronin a. o.). At present there are published few books in Latvia for teenagers about travels and nature and it certainly influences the choice of the young people.

When considering the content of learning literature the following should be respected: 1) the learners' interests taking into consideration the fact that the interests of boys and girls differ, 2) there should be offered works of art on different themes, encouraging one to get acquainted with ranges of themes, not popular among the learners. The answers to the question "**Which genre books do you read most willingly?**" show that the most popular genres for both boys and girls are stories, short stories and novels. (Figure 3).

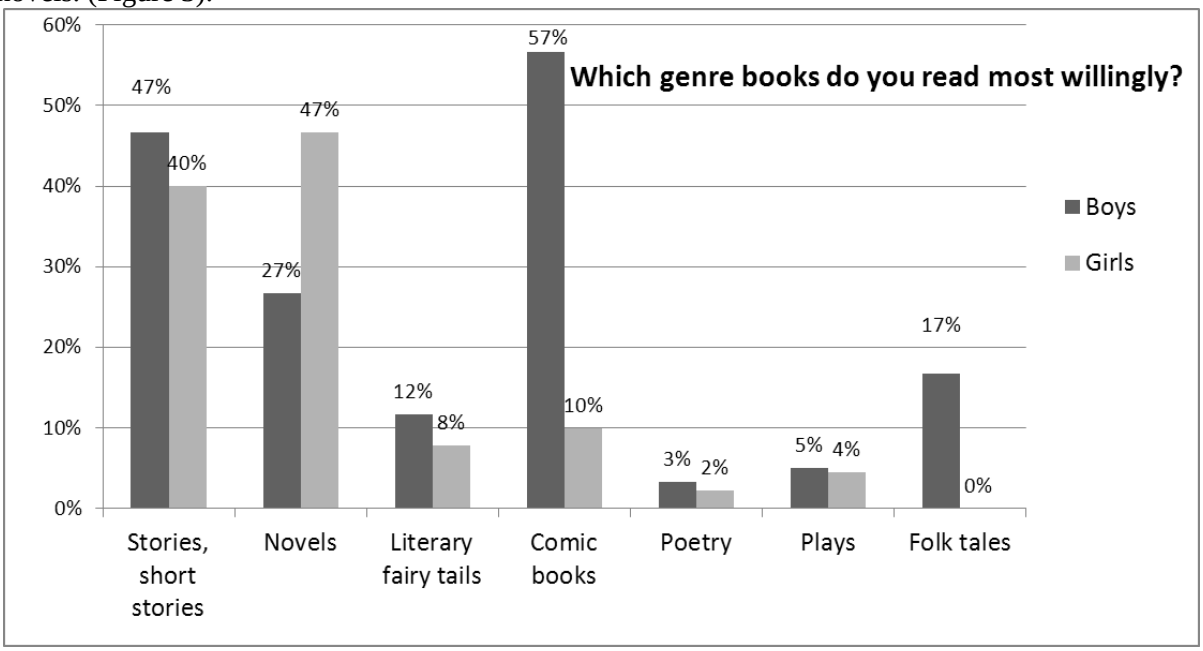

Figure 3. The learners' answers to the question "Which genre books do you read most willingly?".

The answers of the respondents show that comic books occupy an important place among the boys in the choice of material for reading. The fact arouses anxiety. There can be noticed a natural link among one's reading habits, motivation and the choice of comic books – these boys admit that they read very seldom (once or twice in half a year, once in three months, etc.), that they read because the teacher makes them read or in order to get a positive assessment. For the most part these boys cannot name a single concrete book (including a book of comics), and they stress that reading does not interest them at all. It makes one think 1) that the reading skills of the boys are insufficient and 2) probably, they have not come across a book, which interests them.

This investigation also shows that there is a stable tendency among the learners of Grade 9 not to read poetry. It could be explained with the learners' poor reading skills, inability to comprehend the versatility of the characters of poetry, to discern the subtexts, metaphors, symbols, to feel the nuances of emotional experience, etc. When choosing the content of learning literature special attention should be paid to poetry for reading, thus disclosing the thematic, emotional and artistic diversity of it. Taking into consideration the learners' indifferent attitude to poetry, as stated in the investigation, it is desirable to include in the learning content poems of different degrees of complexity in order to develop the learners' comprehension of what is depicted in them. It would be a step closer to rousing one's interest in poetry.

Conclusions

- The following principles should be observed in the choice of the content of learning literature: a high artistic quality of the works of art: diversity of genres, styles, themes, the potential of the updated values in the works, the potential of a dialogue of cultures, the potential of

promoting tolerance; conformity with the topicality of the epoch; conformity of literary works with the peculiarities of the learners' age groups, conformity of literary works with the readers' interests and needs, respect for the learners' sex and ethnic differences.

- The negative attitude of the learners of Latvia to reading works of art out of school influences the choice of the content of learning literature. It is quite possible that the content of learning literature to the young people does not correspond to their interests and needs and as a result it furthers the learners' negative experience.
- The investigation confirms the coherence among reading motivation, interests and attitudes – the learners, who admit that they do not read at all or that they read very seldom, who cannot name a single concrete book and they consider that reading is senseless in general.
- The results of the investigation break the stereotype that the girls' favorite books are those describing feelings – friendship and love and confirm that it is the detectives that the girls prefer. Both boys and girls are still interested in the depiction of fantastic events and adventures in literature.
- The problem of the learners' unwillingness to read poetry is still topical, and the explanation and reason could be the learners' insufficient reading skills.

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PRECONDITIONS FOR ENTREPRENEURSHIP EDUCATION IN TECHNOLOGY SUBJECT

Inga Kepaliene Doctorate; **Birute Žygaitiene** Doctorate;
Kazimiera Petruškevičiene
Lithuanian University of Educational Sciences, Lithuania
inga.kepaliene@vpu.lt, birute.zygaitiene@vpu.lt, kazimiera.petruskeviciene@gmf.vpu.lt

Abstract: Nowadays the entrepreneurship is considered to be one of the core competencies necessary for successful self-realization and development in the modern rapidly changing world. The prevailing trends of problem-solving and project-based activities in the modern didactics of the technology subject constitute a presumption to innovative and modern entrepreneurship education in technology classes; therefore, the object of the research is to reveal preconditions for entrepreneurship education in technology subject. The survey carried out in March – May 2012, when 162 technology teachers were questioned through individual and group questioning, the survey data were analysed quantitatively. Also, other methods were applied: the analysis of the scientific literature, documents regulating education and other normative documents. On the basis of the analysis of data it was established that the attitude of technology teachers towards the entrepreneurship education corresponds to the modern conception of the entrepreneurship education, and the technology subject is suitable for youth entrepreneurship education. The modern conception of entrepreneurship, focusing on the importance of personal qualities, is important as the majority of students lack personal characteristics, which are essential for an enterprising and business personality.

Keywords: entrepreneurship, entrepreneurship education, enterprising personality.

Introduction

While entrepreneurship has been integrated in educational and state development documents of the Lithuania one of the first in Europe, Lithuania started to examine this issue relatively recently with foreign literature, which has been publishing research on entrepreneurship and its education for two decades (Entrepreneurship education at school..., 2012; Župerka, Župerkienė, 2011). Currently is noticed a growing number of scientific publications in entrepreneurial education problem in Lithuania (Župerka, Župerkienė, 2011). This may be influenced by the fact that entrepreneurship is both in European and Lithuanian strategic documents submitted as a factor that will ensure prosperity in the country and competitiveness and economic growth across Europe. (Ekonominio raštingumo…, 2004; Key competence for lifelong learning, 2011; Oslo Agenda for entrepreneurship education…, 2006; Promoting entrepreneurship in schools…, 2006; Recommendation of the European Parliament…, 2006).

Although today where entrepreneurship is often mentioned, the concept of entrepreneurship itself causes a lot of confusion among teachers and researchers, as many different approaches to this issue (Deuchar, 2004; Židonis, 2008). F. Jorgen (2010) note that a different approach to entrepreneurship, there is a common approach and understanding and the same entrepreneurial education and its implementation. According to A. Župerkos and E. Župerkienės (2011), the concept of entrepreneurship definitions can be threefold: some authors define entrepreneurship as a set of features that characterizes entrepreneurs; others perceive the most entrepreneurial activity, while others – like business processes. However, many authors agree that entrepreneurship is associated with a particular behavioral model, not only with business development and believes that this pattern of behavior depends on human characteristics, which can be acquired (Gegeckienė, Graiškienė, 2009; Jones, English, 2004; Komulainen, Korhonen, 2009; Mattare, 2010; Paulionienė, 2007; Raposo, Paco, 2011).

And while entrepreneurship definition and itself phenomenon is widely studied, it is not fully examined the possibilities of entrepreneurial education as well as entrepreneurial education actual implementation in Lithuania. This article attempts to prove the hypothesis that entrepreneurship education can be successful not only in the economic lessons, but also in the technology lessons.

The aim of the article is to to reveal preconditions for entrepreneurship education in technology subject.

Methodology

In order to achieve the objective of the article were used the theoretical and empirical (practical) methods. Theoretical methods used to detect and analyze the concept of entrepreneurship and entrepreneurship education theoretical features. However, the main method was quantitative empirical research method – the questionnaire. Multidimensional questionnaire was developed on the basis of Economic literacy and entrepreneurial education strategy (2004), Recommendation of the European Parliament and of the Council on key competences for lifelong learning (2006), and Technology Basic and Secondary Education programs (2008, 2011). After a pilot study the questionnaire consisted of four parts: introduction, positioning, main and final, issued total twenty closed questions, used four types of scales: nominal, interval, rank and regulations.
The study sample consisted of 162 technology teachers from each of the ten counties of Lithuania. Most part of data 84 percent was collected individual questioning by e-mail; the remaining 16 percent were questioned in writing. Data analysis was performed using only the gradation selection and assignment of frequency counting, without arithmetic operations, because the questionnaire mainly consisted of ranking scale questions, which is allowed to operate only in frequency (Bitinas, 2002).

Entrepreneurship education theoretical features

In many countries, entrepreneurship has been recognized as one of the goals of the education system, which is explicitly included in the national program (Entrepreneurship education at school..., 2012). Lithuania implemented two specific strategies that focus directly on entrepreneurship education and its implementation in general education: Economic Literacy and Entrepreneurship Education Strategy (2004) and National Youth Entrepreneurship Education and Promotion Programme for 2008–2012 (Dėl Nacionalinės jaunimo…, 2008). Economic Literacy and Entrepreneurship Education Strategy emphasizes that… entrepreneurship education is not identical with economic literacy" and that… in the European Union's educational documents, one of the priority activities for the implementation of the Lisbon strategy, is entrepreneurship education", which led to this strategy (Ekonominio raštingumo..., 2004, 2).

According to Economic Literacy and Entrepreneurship Education Strategy (2004), entrepreneurial competence training will consist of two components: first is general knowledge of the business or the economy in the target knowledge for business creation and development. Second are education of attitudes and personal characteristics, such as self–confidence, the desire and opportunities for autonomy and self–study, motivation, decision making, communication, planning, preparation to take responsibility, critical thinking, individual initiative, activity and creativity and risk taking. The initial and basic level of entrepreneurship education is to develop students' personal characteristics listed above, because this will benefit students in the future, regardless of what kind of activities they engage. In secondary education… remains above personal characteristics relevance of education, providing technical and business knowledge" (Ekonominio raštingumo..., 2004, 17).

General Secondary Education Program of Technology (Vidurinio ugdymo..., 2011), as well as Basic Education Program of Technology (Technologijų pagrindinio..., 2008) emphasizes the creative, thoughtful, responsible and capable of resolving environmental problems personality development, which is dominated by problem–solving direction, project based technology education type that best responds to the changes in society and on the same time focus on entrepreneurship education. Entrepreneurship and problematic thinking is as one of the pupil abilities field of technology competence structure between the knowledge and understanding of technology solutions and practical skills, attitudes, learning to learn and communication fields (Vidurinio ugdymo..., 2011).

Results and discussion

Technology teacher's opinion about the technology subject suitability of entrepreneurship education has been a positive trend, as well as their views on the importance of entrepreneurship education. 44

percent of all teachers rated the importance of entrepreneurship education 6 points (very important), 31 percent – 5 points (important). Technology subject suitability of 6 points (very suitable) was rated 24 percent technology teachers, 5 points – (suitable) 34 percent. Technology teachers open responses revealed that entrepreneurship through technology lessons fostered active methods in the presence of various events, fairs and exhibitions. Earlier study also showed that a large part of teachers of different subjects (52 percent) believes that technology is closely related to entrepreneurship education (Zaleskienė, Žadeikaitė, 2008).

Evaluating the suitability of technology subject for entrepreneurship education, teachers evaluated a range of activities (during technology lessons) importance for entrepreneurship education, and many of them attributed to 1 / the most significant, 2 / significant, 3 / medium significant choices, which indicates positive teacher attitude towards entrepreneurship education integration through technology lessons and a minority of teachers considered that the various activities during technology lessons are 4 / a little significant or 5 / insignificant for entrepreneurship education (Table 1).

Table 1

Importance of activities during technology lessons for entrepreneurship education (percent)

Activities	1	2	3	4	5
Ideas search and selection	**60**	29	9	1	1
Sketching	16	**44**	**28**	10	1
Search for analogues	8	**49**	**32**	7	**4**
Activity planning	**40**	**44**	12	2	1
Activity organisation	**46**	39	13	2	1
Problem solving in the technological process	35	**44**	17	2	1
Product value calculation	25	**46**	21	6	2
Work exhibiting and presentation	33	**46**	15	6	1
Sale of made product	28	38	23	5	**6**
Visits to artists' workshops, exhibitions, museums	24	36	**30**	**9**	2
Meetings with artists in school	19	38	**31**	**10**	2
Participation in projects	38	**42**	16	3	1

First (1) / the most significant activity for entrepreneurship education through technology lesson teachers chose ideas search and selection (60 percent) as well as idea implementation modes as sketching and search for analogues teachers evaluated for 2 / significant. Important activities to develop entrepreneurial personality in technology lessons are business planning (1 / the most significant – 46 percent, 3 / medium significant 12 percent) and organization (1 / the most significant – 40 percent, 3 / medium significant –13 percent). Teachers considered that less significant activities, developing entrepreneurship are visits to artists' workshops, exhibitions and museums, meetings with artists in school.

Technology teachers agree with the benefits of entrepreneurship and similarly evaluate usefulness of the two aspects of entrepreneurship education: adding the responses agree and strongly agree the majority of teachers (70 percent) agree with the statement that entrepreneurship education helps students successfully organize and manage your life as well as 71 percent technology teachers agree

with the statement that entrepreneurship education helps students identify opportunities and create economic value.

Technology teachers choosing the entrepreneurial personality education fields in order of importance from four of its, education of personal characteristics assigns to 1 choice (most important) (51 percent), while the economic and business knowledge education teachers consider at least important today (teachers assigned at least this field in first choice , and this field prevailed in fourth last choice). Futures planning skills and cooperation / social skills field's technology teachers assigned to 2 and 3 choice. It should be mentioned, 13 percent of the teachers believe that all learning areas are equally important and all of them are assigned to first choice. K. Komulainen, P. Naskali, M. Korhonen and S. Keskitalo – Foley (2011) conducted qualitative – an interview study also showed, that Finnish basic education teachers also expressed the position that every student should be encouraged to develop „internal" enterprise aimed at personal development properties (internal entrepreneurship), and knowledge of economic development (external entrepreneurship) was evaluated critically, arguing that competition in the commercial capitalist ideas only encourages students egoism.

Since technology teachers' attitudes towards the entrepreneurship education are very important for successful implementation of entrepreneurship education in technology subject, it was presented five statements where teachers had to express their agreement or disagreement with three–point rank scale (answers – agree, partly agree, and disagree) (Figure 1). Minority of technology teachers agree / mostly a partly agree with the fact that the economic subject enough for pupils entrepreneurship education. And this can be explained by the fact that the majority (64 percent) of teachers agree that entrepreneurship education without the knowledge, how to start a business, includes personal characteristics development. Maybe that's why so many teachers (52 percent) agree with the statement that entrepreneurship should be educated from primary school and 14 percent disagree with the statement. On the answer that the economy subject is enough for pupil entrepreneurship education disagree more – 29 percent teachers (the highest negative reviews for position between the claims).

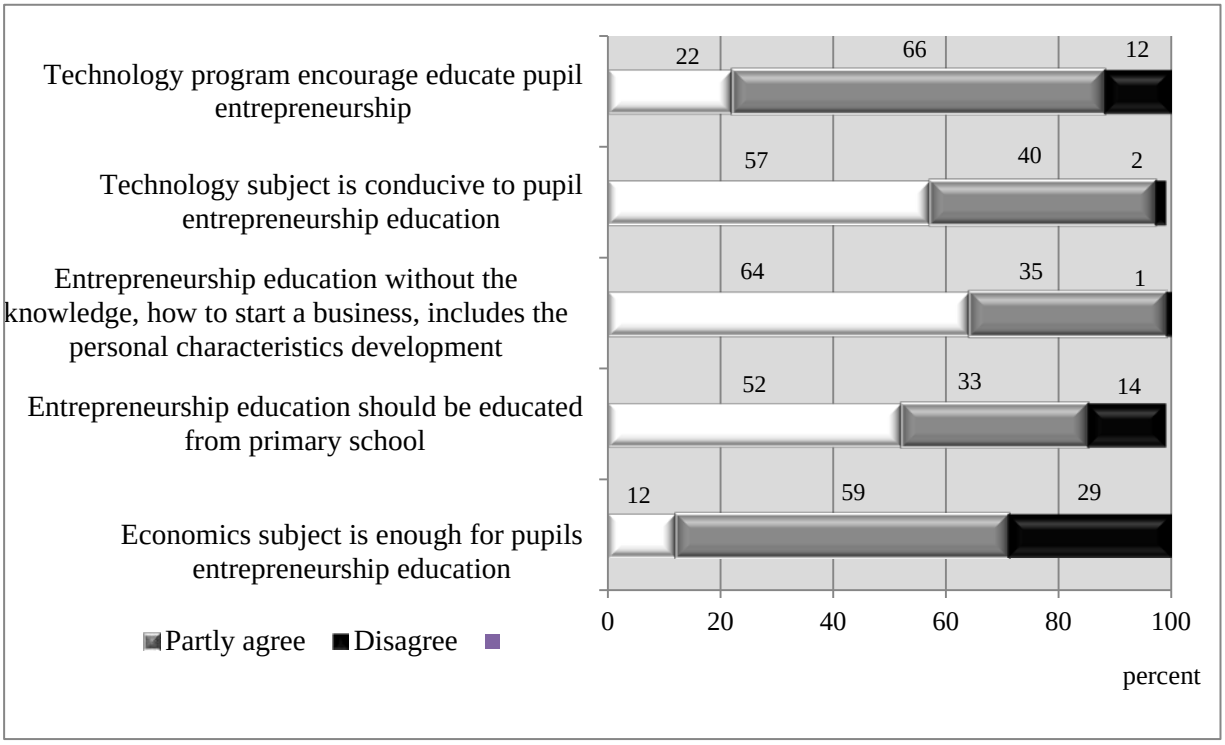

Figure 1. Attitude of technology teachers towards the entrepreneurship education.

Teachers, being an educational activity participants, estimated that most of the personal characteristics (which requires an enterprising and business personality) students lack of responsibility (82 percent, from of 21 percent – very often, 61 percent – often). From teachers' responses also important characteristics of students lack are independence (67 percent, of which 15 percent – very often, 52

percent – often), problem solving and critical thinking (63 per cent., of which 16 percent – very often 47 percent –often).

Conclusions

- The technology subject is suitable for the entrepreneurship education because the entrepreneurship education is integrated into the education goals and guidelines for implementation of the general technology programs; in addition, the teachers themselves agree that the technology subject is suitable for the entrepreneurship education (58 percent), they use the methods of active teaching/learning, they propose the example of good experience. However, currently the prevailing trends of problem-solving and project-based activities in the technology didactics are not sufficiently implemented in practice as, during the technology lessons, the most common works are practical technology works (43 percent). The premise arises that there is a lack of time, not enough methodical material, information dissemination, collaboration, material base and finance for the full implementation of the curriculum.
- The modern conception of the entrepreneurship education without teaching the target economic knowledge highlights the importance of the development of personal qualities and the integrity of the entrepreneurship education at all levels of education, applying the model of teaching/learning the attitudes, knowledge and skills of entrepreneurship.
- The attitude of technology teachers towards the entrepreneurship education corresponds to the modern conception of the entrepreneurship education: teachers agree (52 percent) with the entrepreneurship education at all levels of education, they approve a wide conception of teaching/learning the entrepreneurial provisions and personal qualities (64 percent), and they believe that entrepreneurship education for students will contribute to the development of both economic and social added value in the future (70 percent), therefore they consider the entrepreneurship education to be important (75 percent).
- The modern conception of entrepreneurship, focusing on the importance of personal qualities, is important as students are unable to set their goals (90 percent) and to purposeful strive for it (66 percent); they lack of responsibility (82 percent), self-sufficiency (67 percent), initiative (57 percent.), problem solving and critical thinking (63 percent) – the properties that are the ultimate goal of the entrepreneurship education.

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FLESCH READING EASE SCORE AS AN INDICATOR FOR SELECTING TEXTBOOKS IN PHYSICS

Maija Lanka; **Ludis Pēks** Dr.paed., Dr. sc.ing.
Latvia University of Agriculture, Institute of Education and Home Economics, Latvia
maijalanks@inbox.lv, ludis.peks@inbox.lv

Abstract: At Latvian secondary schools it is not uncommon to hear students complaining about Physics textbooks being too complicated. Students' ability to perceive and comprehend what is written in the textbooks depends on their reading competence as well as on the readability of the texts. The aim of this study is to determine whether the readability of a Form 11 textbook in Physics corresponds to the readability of students' written language in Form 11. The study identifies readability assessment techniques and examines their suitability for texts written in Latvian. It establishes that out of several text readability indicators, Flesch Reading Ease Score (FRES) is the most appropriate for the present study in order to characterize the readability level of texts written in Latvian. Application of the indicator allowed arriving to a conclusion that the readability of written language of the students under the study substantially differed from the readability of the Physics textbook used in the study process. This discrepancy indicates one of the possible reasons why perception of the content of Physics textbooks causes difficulties.

Keywords: readability, Flesch Reading Ease Score, reading competence, Physics textbook.

Introduction

It is essential that textbooks chosen for the study process correspond to the students' ability of perception. During a period of seven years long unstructured observation process by the author (M.L.) she has come to a conclusion that too often students claim that texts in Physics textbooks are too difficult for them to understand. The existence of this problem actuated the study whose aim is to determine whether the readability level of texts in Form 11 Physics textbook corresponds to the readability level of Form 11 students' written language.

The words said by Irving Lorge about text perception and readability in the middle of the twentieth century have not lost their relevance today: „What a person understands of the material he reads depends upon his general reading ability and the readability of the text he is reading. His reading ability, moreover, depends upon his intelligence, education, environment, and upon his interest and purpose in reading. The readability of a text depends upon the kind and number of ideas it expresses, the vocabulary and its style, and upon format and typography." (DuBay, 2006, 46).

The term readability has several definitions, one of which can be found in The Literacy Dictionary, where Readability is defined as "the ease of comprehension because of style of writing" (Fry, 2006, 1).

Characteristics o f readability. How easy or difficult it is for a reader to perceive the text can be identified by several groups of factors. The reader's background and preparedness, his or her motivation as well as the organization of the cognitive process are of utmost importance. Secondly, an important role is played by the visual features – font size, font type and pictures. Thirdly, readability is greatly affected by the linguistic properties of the text – vocabulary, length of the sentences, text structure, etc.

The end of the 19th century, when William Lucius Adelno Sherman (1847 – 1933) started his research into English prose works applying methods of mathematical statistics, marks the beginning of extensive studies on the impact of linguistic properties of texts on their readability. In educational theory, the main area where text readability identification can be applied is language learning. Throughout the world there have been developed numerous language learning resource databases from which teachers can choose language learning tools appropriate for their students, since, as it has been rightly observed by Glenn Fulcher „At the most basic level, teachers recognise that giving students reading material that is "too difficult" is damaging to the learning process, and demotivating to the student" (Fulcher, 1997, 2).

However, using readability tests in the assessment of learning tools does not necessarily guarantee obtaining unequivocal results. „Readability, or "text difficulty", has been, and remains, an area of concern for all those who need to establish the appropriateness of a given text for a pedagogic purpose. And these concerns have historically been more practically than theoretically oriented" (Fulcher, 1997, 2).

Today, a variety of text readability indices can be measured by anyone interested on special websites where by copying and pasting text, readability scores are determined automatically. As an example can be mentioned *Online-Utility.org* (2012). A readability determination tool is also available in Word. Unfortunately, such tool cannot be activated in the Latvian version of Word.

These measurement techniques are useful for translators, publishers of advertising and informative materials, etc. Variety of techniques have been developed for testing readability level, some of them being quite elaborated, for example, methods of Lexil or Coh-Metrix, where text readability can be determined based on a number of criteria which are quite difficult to measure. However, for the greater part, such techniques are not too complicated. Further on, several examples of less complex formulae of measuring readability of English texts have been given. By inserting the appropriate values in the equation can be obtained a figure which characterizes the readability of the text – the index.

The Gunning's Fog Index (1952) $$GradeLevel = 0.4 \times ASL + PHW \quad (1)$$

The New Dale-Chall Readability (1948) $$RawScore = 0.1579 \times PDW + 0.0496 \times ASL \quad (2)$$

The SPACHE Readability (1953) $$SR = 0.141 \times ASL + 0.086 \times PDW + 0.839 \quad (3)$$

Flesch Reading Ease Score (DuBay, 2004) $$FRES = 206.835 - 1.015 \times ASL - 84.6 \times ASW \quad (4)$$

where *ASL* - Average Sentence Length;
PHW - Percentage of Hard Words;
PDW - Percentage of Difficult Words;
ASW - Average number of Syllables per Word.

As can be seen, the readability formulae are different; however, several similar features can be found:

- All of the four formulae include the value "Average Sentence Length" (*ASL*),
- In Formulae 2 and 3 one of the parameters is "Percentage of Difficult Words" (*PDW*), but the parameter "Percentage of Hard Words" *(PHW*) included in Formula 1 is essentially similar to value *PDW*,
- Equation 4 differs from the others with the parameter *ASW* – "Average number of Syllables per Word".

The main advantage of Flesch Reading Ease Score (Formula 4) in comparison with other equations mentioned before is that both values, *ASL* and *ASW*, can be easily measured and cannot be interpreted subjectively, whereas when measuring parameters *PDW* or *PHW* required for Formulae 1, 2 and 3, it is highly likely to have very different interpretations. Possibly, because of this reason, Flesch formula is one of the most popular and is most commonly applied. Unfortunately, the original Flesch formula (Formula 4) is suitable only for evaluating English texts. When analysing texts in other languages but English, it will not produce a result which could be compatible with the relevant scale. Some world languages have specially adapted Flesch formulae (Formulae 4-7). Included in these formulae are factors of *ASL* and *ASW*, whose values depend on the usage frequency of the so called number of zero value words in the relevant language, as well as on other peculiarities of the language.

Flesch Reading Ease Score Formulae for English (DuBay, 2004, 22):
$$FRES = 206.835 - 1.015 \times ASL - 84.6 \times ASW \quad (4)$$

Flesch Reading Ease Score Formulae for Spanish (Barrio Cantalejo, 2007, 154)
$$FRES = 206.835 - 1.0 \times ASL - 62.3 \times ASW \quad (5)$$

Flesch Reading Ease Score Formulae for Russian (Денисенко, 2008, 201)
$$FRES = 206.835 - 1.3 \times ASL - 60.1 \times ASW \quad (6)$$

Flesch Reading Ease Score Formulae for French (Barrio Cantalejo, 2007, 154)
$$FRES = 206.835 - 0.692 \times ASL - 74.2 \times ASW \quad (7)$$

where ASL= Average Sentence Length;
ASW = Average number of Syllables per Word.

When using Flesch's reading ease score formula appropriate for the relevant language, readability of any language could be compared with the Flesch scale (Table 1).

Table 1

Flesch's readability scale (DuBay, 2004, 22)

Style	**Flesch Reading Ease Score**	**Estimated School Grade Completed**
Very Easy	90 to 100	4th grade
Easy	80 to 90	5th grade
Fairly Easy	70 to 80	6th grade
Standard	60 to 70	7th or 8th grades
Fairly Difficult	50 to 60	Some high school
Difficult	30 to 50	High school or some college
Very Difficult	0 to 30	College

As it can be seen from Table 1, the higher Flesch Readability Ease Score, the easier is the text. In addition, Flesch's studies reveal which level of formal education the text is appropriate for.

Appropriateness of the text for the reader can be detected with a number of various measurements, including evaluation of a text written by the reader herself. William H. DuBay (2006) in his work "The Classic Readability Studies" refers to the words by William Lucius Adelno Sherman (1847 – 1933), the founder of the statistical analyses of literary works, "No man should talk worse than he writes, no man writes better than he should talk." (DuBay, 2006, 11) When choosing linguistic study material, appropriate for the student, it is assumed that the reader can perceive texts whose readability level is close to the readability level of texts written by the reader herself.

Estimated School Grade Completed shown in Table 1 is an indicator which indirectly points to the *reading competence* characteristic for the given level of education or age. Wide international studies of reading competence are being carried out within the framework of OECD (Organisation for Economic Cooperation and Development Programme for International Student Assessment). Reading competence can be defined as "understanding, use and evaluation of a written text by an individual in order to achieve one's goals, develop one's knowledge and potential, and participate in public life " "Reading competence embraces a wide range of cognitive skills – from recognition of a written text, knowledge about words, grammar, language and text structure to the general knowledge about the world. It also includes metacognitive skills – application of different strategies while working with the text." (Geske, Grīnfelds, 2010, 19)

Within the framework of our study reading competence was researched as students' ability to perceive and understand texts of a certain readability level.

While searching for information on studies in the field of readability by Latvian scientists, only indirect references could be found on the existence of such research in this country. For example, in correspondence exchange of 2010 between the Ministry of Education and the Consumer Rights Protection Centre a reference can be found about the fact that researchers of the Institute of the Physical Research and Biomechanics are working on a readability formula for Latvian texts. A few references to application of Fog Readability Test can be found in the research paper of 2004-2005 February published by the National Centre for Education "Textbook Readability – Relevance of the Content Expression Form to the Developmental and Perceptual Specifics of the Student Age Group, their Interests, Experience and Needs" (Mācību grāmatu ..., 2005).

On Tilde website can be found a statement, that "IT Competence Centre" informs the public that in the period from November 2011 till February 2013 it would be conducting a research project "Research into reading Latvian texts of different levels of complexity for primary school children and development of a readability formula for this age group" (Projekts "Dažādas ..., 2012). However, neither scientific

publications on Latvian written text readability assessment nor a readability formula adapted to the Latvian language could be found.

Translations into Latvian of foreign authors' works in this field have not been found, either.

Research objectives:

- becoming aware of text readability assessment options and choosing appropriate techniques to determine readability of texts in Latvian;
- determining FRES of students' written language and comparing results with Flesch's scale;
- determining FRES of the language used in Physics textbooks;
- comparing readability of Physics textbooks and students' written works.

Research period a nd pa rticipants: 2012, Tukums Rainis Gymnasium. In the studies of students' written language readability were involved 52 Form 11 students. For research was chosen "Physics textbook for Form 11" by E. Šilters, V. Reguts, A. Cābelis (2006).

Methodology

In order to identify the possibilities to assess readability of texts in Latvian with the existing Rudolph Flesch formulae, a pilot project was carried out with the aim to evaluate texts written in three languages.

Table 2

Usage of Formula 4 and 6 for evaluation of texts in English, Russian and Latvian

Text in English		**Text in Latvian**		**Text in Russian**	
Hotel Jurmala Spa is a place, where to regain harmony of soul and body!	14 W* 21 S*	Hotel Jūrmala Spa ir vieta, kur atgūt dvēseles un ķermeņa harmoniju!	11 W 23 S	Hotel Jurmala Spa это место для восстановления гармонии души и тела!	11 W 26 S
Get away from your everyday routine and for a moment forget the world around, come for peaceful relaxation to our Spa & Wellness Centre.	24 W 37 S	Izraujieties no ikdienas steigas un uz brīdi aizmirstiet apkārtējo pasauli, ļaujoties mierpilnai atpūtai, mūsu Spa un veselības centrā.	18 W 43 S	Вырветесь из ежедневной суеты и на мгновение забудьте внешний мир, придаваясь умиротвори-тельной релаксации в нашем спа-центре и оздоро-вительном комплексе.	19 W 54 S
For your pleasure and health Hotel Jurmala Spa in Latvia offers - relaxing massages, various water treatments, beauty treatments for face and body.	22 W 40 S	Jūsu labsajūtai mēs piedāvājam - relaksējošas masāžas, dažādas ūdens procedūras, skaistumkopšanas kūres sejai un ķermenim.	15W 41 S	Для Вашего отдыха мы предлагаем - релаксирующие массажи, различные водные процедуры, косметические процедуры для лица и тела	17 W 49 S
Supply of more than 100 different treatments allows you to choose the most suitable for improving health and well-being.	19 W 31 S	Vairāk kā 100 dažādu procedūru plašais piedāvājums ļaus Jums izvēlēties sev piemērotāko veselības un pašsajūtas uzlabošanai.	16 W 43 S	Широкий выбор из более чем 100 различных процедур позволит Вам выбрать наиболее подхо-дящую для улучшения здоровья и самочувствия.	18 W 48 S
Together: 4 sentences, 79 words, 129 syllables		**Together:** 4 sentences, 60 words,150 syllables		**Together:** 4 sentences, 65 words, 177 syllables	
*ASL= **19,75** ASW= **1,63***		*ASL= **15,00** ASW= **2,50***		*ASL= **16,25** ASW= **2,72***	
Calculation of FRES using Formula 4					
FRES = 48.9		**FRES = −19.9****		**FRES= −39.8****	
Calculation of FRES using Formula 6					
FRES= 83.2**		**FRES=37.1**		**FRES= 22.2**	

* W – words; S – syllables ** Data acquired should not be regarded as valid

Texts written in three languages (altogether 6 texts) and two interpretations of Flesch formulae were chosen: Formula 4 (for evaluation of texts in English) and Formula 6 (for evaluating texts in Russian).

FRES was calculated for all of the six texts with the help of both formulae. The example of the study of the three texts shown in Table 2 is a part of the pilot project on the usage of Flesch's formulae.

Summary of results acquired in the research process of all six texts can be seen in Figure 1.

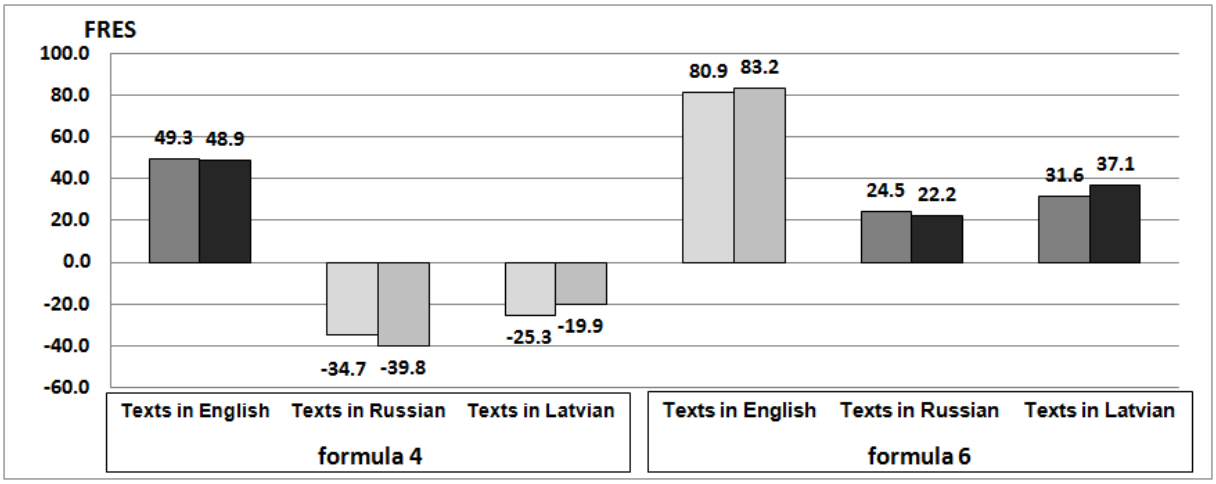

Figure1. FRES values in English, Russian and Latvian texts acquired by means of Formula 4 and Formula 6.

- The text readability index FRES, acquired when evaluating texts in English, equals 48.9 (FRES=48.9), which on Flesch's scale (Table 1) corresponds *Fairly Difficult*. When evaluating the same texts by Formula 6, the result acquired is distinctively different: FRES= 80.9 and 83.2, which on Flesch's scale corresponds *Easy*. When applying Formula 6 to texts in English, the result acquired is not valid.
- When evaluating texts in Latvian and Russian by Formula 4, the indices acquired are negative figures, which does not correspond to Flesch's scale; consequently, these data are not valid.
- When evaluating texts in Latvian and Russian by Formula 6, research of Latvian texts results in $FRES_1$= 31.6 and $FRES_2$= 37.1, but for Russian texts the corresponding figures are: $FRES_1$= 24.5 and $FRES_2$= 22.2. The acquired FRES index characterizes Russian texts as *Very Difficult*, but Latvian texts as *Difficult*. It is evident that the Russian texts have a higher degree of complexity than the variants of the same texts in Latvian and English, which can be explained by the usage of extremely long compound words in Russian texts.

The results of the pilot research on the usage of Flesch's formulae allows to arrive at a conclusion that Rudolph Flesch's equation (Formula 6) can be used in order to compare texts written in Latvian.

Results and Discussion

FRES of students' written language was determined by analysing three different written assignments for students of Form 11:

- content summary of the novel "The Adventures of Tom Sawyer" by M. Twain;
- creative writing task „My Morning";
- description "The Present and the Past of the School".

The results of the analyses of the written language of students from Form 11 are given in Table 3 and in Figures 2 and 3. The total number of analysed written works is 143. They were written by 52 students. Some of the students did not write all tasks.

As can be seen from Figure 2 and Table 3 students demonstrate very different language readability results in the three types of written assignments. Written language FRES substantially differs depending on the contents of the task.

- In the creative writing task „My Morning"; the greatest part of FRES (32 items) are spread in the interval from 60.0 to 79.9 – in this type of work students create a text which is easier to read compared to the written presentation of thoughts in the other two assignments.

- In the description "The Present and the Past of the School" the greatest part of FRES (33 items) are spread in the interval from 40.0 to 59.9 – in this type of work students create a text which is more difficult to read compared to the written presentation of thoughts in the other two assignments.

Table 3

Form 11 students' written language FRES

Type of written assignment	FRES interval						
	20.0 - 29.9	30.0 - 39.9	40.0 - 49.9	50.0 - 59.9	60.0 - 69.9	70.0 - 79.9	80.0 - 90.0
	Number of works						
Content summary of the novel "The Adventures of Tom Sawyer" by M. Twain	0	2	5	14	24	7	0
Creative writing task „My Morning";	0	0	0	7	15	17	4
Description "The Present and the Past of the School"	1	2	14	19	9	3	0
Together	**1**	**4**	**19**	**40**	**48**	**27**	**4**

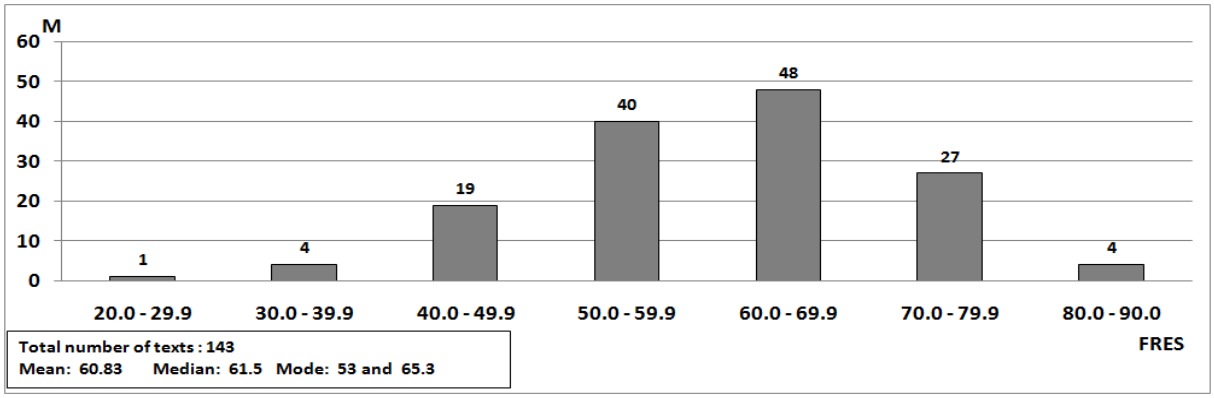

Figure 2. FRES values in the three types of written assignments performed by Form 11 students (M- number of works).

Data procession performed by on-line programme *Mean, Median, Mode Calculator* (2012). 46 of the participants of the research project wrote all three written tasks. When calculating the mean FRES value of each participant, the acquired data spread in a narrower interval (Figure 3).

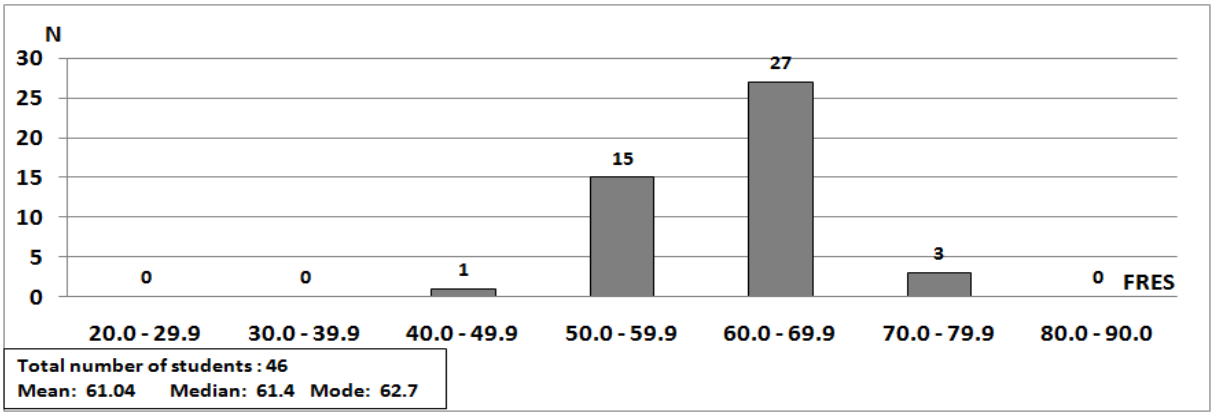

Figure 3. FRES mean values in Form 11 students' written works (N – number of students).

- As can be seen from Figure 3, for 42 out of 46 students' written works the mean FRES value is in the interval from 50.0 to 69.9.

- The FRES value interval acquired corresponds to Flesch's scale groups: *7th or 8th grades* and *Some high school*. In Latvian system of education Secondary School Form 11 (17 years) corresponds in terms of age to "high school" in the US system of education (15 – 18 years) while 7th or 8th grades in Latvian system of education correspond to Forms 7 and 8, which belong in the primary stage of education (13 – 14 years).
- The data acquired are close to the data given in Flesch's scale (Table 1). It is therefore appropriate to continue research on the usage of FRES to specify factors used in Formula 6 in relation to texts written in Latvian.

In order to research the language difficulty level of Form 11 textbooks in "Physics for Form 11" (Šilters, Reguts, 2006) 10 paragraphs were selected. Taking into account the fact that the presence of mathematical expressions increases the complexity of the text, "easier texts" were selected, which did not abound in mathematical figures and formulae. In the chosen texts, mathematical symbols and formulae were not included into the total word and syllable count. The results of the analyses of the text difficulty level in Form 11 Physics textbook can be seen in Figure 4.

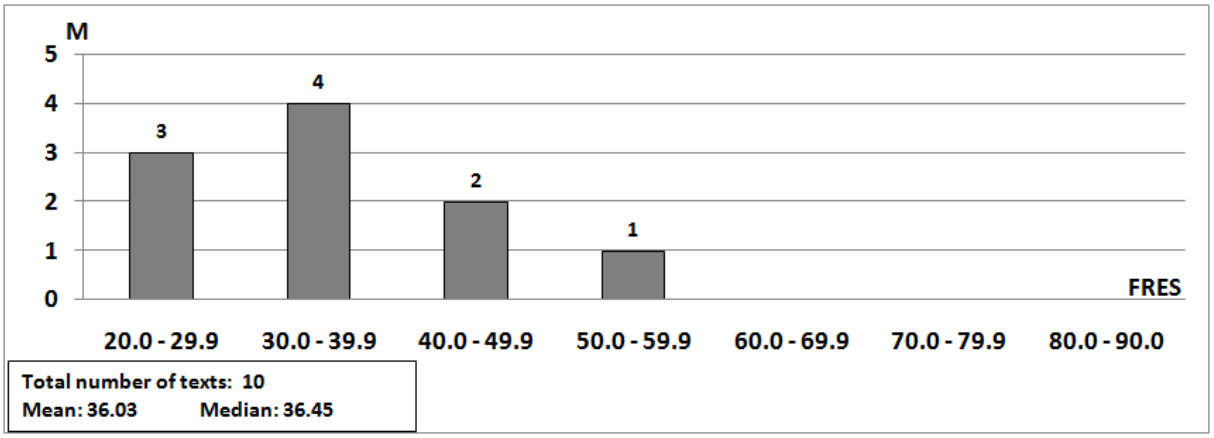

Figure 4. FRES values in the texts of Form 11 Physics textbook. (M – the number of texts evaluated).

As it can be seen from Figure 4, in "Physics for Form 11" by Edvīns Šilters seven texts out of ten are in the interval from 20.0 to 39.9, which on Flesch's scale corresponds to *Difficult* and *Very Difficult*.

Analyses of secondary school Physics textbooks leads to conclusion that opportunities to lower the difficulty of text readability are limited since many of specific terms used in physics quite often are long compound words; moreover, it is not feasible to explain a theme in physics without using mathematical symbols, which considerably influences the readability of the text.

Comparison of FRES values of Physics textbooks and students' written language makes it evident that:

- The intervals of students' written language FRES mean values (Figure 3) and the intervals of the textbook FRES values (Figure 4) overlap in a narrow area;
- Students' written language FRES mean value is 61.04, the median is 61.4, but the mean value of the textbook FRES is 36.03, and the median is 36.45. The significance of the differences is evident – the readability of Physics textbooks is considerably more complicated than the readability of texts produced by students themselves.

Future research is required in order to establish the preferable FRES difference required both to perceive and fully comprehend the text in the Physics textbook and to improve students' reading competence.

Conclusions

- Each of the identified text readability formulae has its specific traits and application characteristics. When doing research on text readability comparison, formulae relevant for the particular language must be chosen. In the pilot project researching the readability of text fragments in English, Russian and Latvian it was established that from the formulae discussed *Flesch Reading Ease Score* formula for the Russian language (Formula 6) is also the most appropriate for evaluating texts in Latvian. Using this formula it was proved that readability level of

Form 11 students' written texts considerably differed from the readability level of Physics textbooks, and for majority of students the language in the Physics textbooks was too difficult.

- Possibilities to lower the readability level in secondary school Physics textbooks are limited since special physics terms and mathematical symbols are indispensable part of such texts, which substantially affects text readability.
- It is considered useful to do further research on the usage specifically of *Flesch Reading Ease Score* to specify the compliance of its calculation formulae for Latvian texts.

It is necessary to continue research also to clarify what is a rational *Flesch Reading Ease Score* difference between the language in the textbook and the text produced by students themselves in order to promote the development of student's reading competence, as well as to facilitate Physics textbook comprehension.

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ASSESSMENT IN CRAFT LESSONS: POSSIBILITY OR NECESSITY. STUDENTS' OPINION

Ene Lind, PhD
Tallinn University, Estonia
enelind@tlu.ee

Abstract. This article deals with the assessment in the Craft lessons in the 1st stage of compulsory school, analysing the need for assessment and the different possibilities of evaluation. The assessment consists of systematically collecting data about the progress of pupils, analysing this data and giving feedback to the pupils. This makes assessment the basis for planning classes and an intrinsic part of teaching and learning. Various methods are used for assessment. The Estonian national curriculum for basic schools enables in the first six classes to use textual descriptive assessments with no numerical equivalent in evaluating the progress of pupils. In order to get an overview on how and whether students of teacher training of primary education are able to assess pupils and whether they prefer notes or textual evaluations, they were asked to describe their views on assessment. From the analysis of the essays can be concluded that students find assessment important but at the same time it is one of the experiences they are looking for most apprehensively in their future work as teachers.

Keywords: craft, assessment, students of teacher training.

Introduction

Assessment is a systematic collection of data on pupils' progress, analysing this data, and giving feedback to the pupils. Assessment is the basis for the further planning of teaching. Studies show that assessment makes learning more effective, pupils' results improve, and their motivation increases (Gronlund, 2003; Butler, McMunn, 2006; Hult, Olofsson, 2011).

Assessment process is influenced by a number of different factors, which to a smaller or greater extent are important in shaping the teaching process (Figure 1).

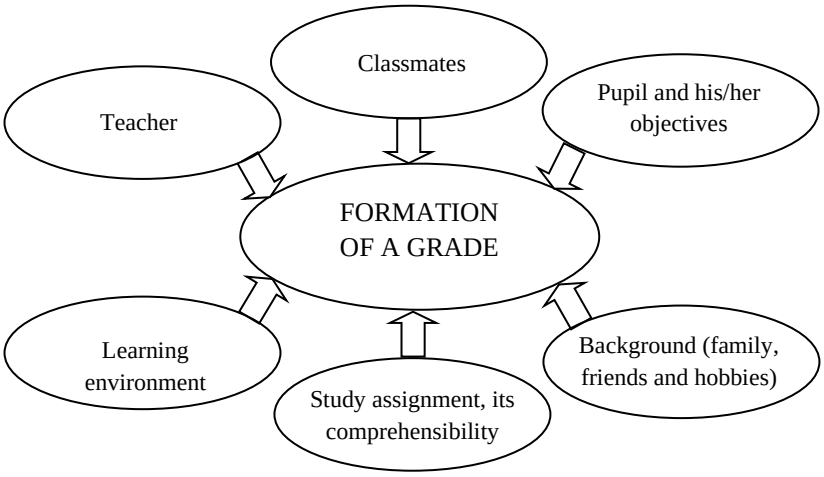

Figure 1. Factors influencing the formation of a grade.

For each pupil their influence is different, although it should be said that in some way all the factors shown on the figure have an impact on a pupil in his/her studies and in the formation of the grade. Teachers must have respect for giving a grade and they must understand the influence a grade might have on a pupil. A grade can only be given on the basis of the information a teacher receives first-hand. Conclusions drawn by the teachers are based on the quality of the available information. (Calder, 1995, 16) However, this information can significantly be influenced by the pupil and the pupil's opinion on his/her learning process and development

Assessment is generally seen as a form of measurement, which means that each specific result is compared to a norm – be it an intra-subject or a group norm or the norm of each individual pupil (Vernik-Tuubel, 1995; Dunn, Morgan, 2004, 15; Kadajas, 2005). The term „assessment" is primarily

seen as an evaluation, a valuation of information or an activity, then a verbal grade and only finally as a numerical grade (Weeden, Winter, 2002, 36; Butler, McMunn, 2006). It is the verbal feedback between the teacher and the pupil that supports the pupil's motivation and his/her will to keep on studying. A numerical grade does not give an overview of what to do next and how to achieve better results.

In the National Curriculum for Basic Schools the objectives of assessment have been formulated as follows (Põhikooli riiklik..., 2011):

- supporting pupils' progress;
- giving feedback to pupils;
- motivating and inspiring pupils;
- shaping a positive self-appraisal in pupils;
- getting feedback for the teacher on study results, so they can adjust the study process, if necessary.

In order to assign grades fairly to pupils, an assessment system agreeable with the curriculum has been worked out, which gives information on the knowledge and skills pupils should learn and which level should these be on. Grades in the form of numbers and percentages are not equal in case of different performance or different subjects. Grades should be observed in a certain context of a particular grade and subject, a context that comprises both the assessor and the object of assessment.

The Estonian general educational system uses five-grade assessment scale, where number „5” is the highest grade and number „1” is the lowest. In addition to the guidelines provided in the general part of the curriculum, each subject also has specific criteria, which are used to assess pupils numerically, thereat guaranteeing that teachers can use such an intra-subject scale as an aid in assessing different topics and that pupils understand the meaning of such numerical grades. However, the new Estonian national curriculum for basic schools foresees that on the 1st and 2nd stages of study in basic school (Grades 1-6) only descriptive verbal assessments with no numerical equivalent can be given to pupils.

Practically, each new grade is dependent on the pupil's previous grades or it has to take into account the pupil's interim progress (Dunn, Morgan 2004, 252). Considering a pupil's individual progress is especially important in Craft lessons, where assessment should be based on the connection between the working pace and the created object of each pupil, not on comparing a pupil with peers or with general standards. Although generally it must be recognised that too often pupils' individual development is not considered in assessment, but their results are compared to some ideal or standard results. Using such a norm is significantly more difficult, when the task is more profound than just knowing some simple facts (Vernik-Tuubel, 1995, 9). In case of Craft, assessing is often abstract, as it is a creative subject, where not too many tasks are based solely on facts. This renders assessing in Craft significantly more difficult, as there are no reliable rules to follow in deciding on a grade. In Craft knowledge and skills are closely intertwined, as the acquiring of skills is generally preceded by explanations of the theory and technology.

Assessing is a rather difficult task for a teacher and many of them feel uncertain about it. At school grades are given in order to keep a tab on study results. If the objective of assessment is to keep count on some specific study results or school performance, the basic requirement for the assessment is objectivity – all results must be assessed on the basis of identical criteria, i.e. specific grades must give proof of the existence of specific knowledge, skills, attitudes, whereas the only criterion of assessment is the correspondence of the acquired knowledge to the requirements set in the study programs. A grade is objective, when it has not been influenced neither by the giver nor the receiver of the grade – its only source is the specific result compared to certain norms (Dunn, Morgan, 2004, 3). However, objective assessment is sometimes difficult. Subjectivity in assessment may become obvious in subjects, which presume the teacher to have a sense of originality and ability to understand the modern world of art and creation. One such example is Craft, where pupils' creativity or conceptions fluctuating from the traditional may significantly differ from the preferences of the teacher, which in many cases leads to subjective assessment (Kadajas, 2006, 25). This, of course, applies to numerical assessment. To ease the fear for subjective assessment adding a verbal evaluation to the grade helps to solve the problem.

Methodology

Within the framework of the research a qualitative study was carried out, which was based on the principles of a phenomenographic study, where the objective is to describe, analyse, and understand people's experiences (Marton, 1981, 80). The target group of the study were the 3rd year class teacher students, who will teach all the main subjects in Grades 1-3, including Craft.

The research question focused on how the students perceive, understand, and experience assessment as an important part of the study process. It was supposed that students' opinion on assessment and its importance is greatly dependent on their own personal experience dating back to their years at school (students' standpoint), on the one hand. However, on the other hand the influence of educational scientific subjects learned in the university on the formation of opinions cannot be ignored. Hence there were two contrasting aspects: students' viewpoint based on experience and acquired educational scientific understanding or teacher's understanding of assessment.

In order to examine the students' opinion, an essay form was used (Topic: „Whether, why, what, and how should assessment be organised in Craft"). The openness of questions was guaranteed in data collection. It was presumed that individuals may have different approaches to one and the same notion and activity and that these approaches may change in time.

The essays of 11 students were analysed. To guarantee the anonymity of the analysis the name of the author of each essay was replaced with a code. The aim of the analysis was to find structural differences in the data, which would explain the mutual relations between the studied phenomena and the approaches related to them. Putting together the analysis was based on the theory of analysis of phenomenographic study by M. Huusko and S. Paloniemi (2006, 167-169). To illustrate the results, the most characteristics opinions on the problem have been brought out.

Results and discussion

As the first and the most important issue it was observed, what students think of the different aspects of assessment: traditional numerical assessment and the evaluation given to pupils' performance. In students' opinion these two may exist both together as well as separately (Table 1).

> TT-4: "*Assessment is an important part of school life, but numerical assessment should be avoided slightly more and verbal feedback including mistakes, suggestions, and praise should be included to a greater extent. These to can also be used together."*

In some essays pupils' own evaluation on their work was elicited as a third assessment component.

> JK-7: "*Assessment must be two-sided. Part of it must come from the teacher, but also the other side or the child must be heard. Children must have a possibility to express their thoughts, they have to assess their own activity."*

Table 1

Possibilities of assessment

	KM -1	MM -2	GE- 3	TT- 4	GV- 5	BO- 6	JK- 7	TS- 8	LT- 9	LS- 10	GM- 11
Numerical grade	x	x	x	x	x	x					x
Verbal evaluation	x	x	x	x	x	x	x	x	x	x	
Self-reflection							x			x	

As the table shows, ten future teachers held the opinion that above all the assessment process should be based on evaluation/feedback; one respondent was content with only a numerical grade. Two future teachers thought it would be necessary to give pupils an opportunity to analyse/assess their own performance.

> LS-10: "*I believe it certainly motivates pupils to work more."*

Based on the previous it should be noted that grades may arouse different and often ambivalent reactions in pupils. Grades have been seen as a motivating factor, but also as a factor decreasing pupils' motivation. P. Weeden et al (2002, 139) have found that giving numerical grades is one of the most effective ways of motivating pupils. However, the same authors claim that assessment may also have a negative impact. Assessment has a negative impact, when the negative grade is not accompanied by an explanation on how the pupil could improve his/her performance. The importance of grades is overrated, while giving verbal evaluations is underrated, inducing negative feelings in pupils towards grades, because these do not provide them with actual information on their work and progress. (Weeden, Winter, 2002, 44)

The question "Why assess?" was answered by all the respondents by the need for feedback, first of all. Verbal feedback, in particular, supports pupils' motivation and willingness to keep on learning, which is considered one of the most effective ways of supporting learners' progress and guaranteeing success in learning (Weeden, Winter, 2002).

> MM-2: *„Assessment provides the teacher with an overview of whether pupils understood the new topic, is there something they did not understand, did the teacher explained the topic in an overly complicated way, can the teacher change his/her teaching methods to make the topic easier for pupils to understand, etc. However, a grade provides a pupil with feedback on his/her achievements, what was good/bad, how can the work be improved."*

> TT-4 *"Grades motivate children to try hard and they give children feedback on the work they have done."*

Whereas Craft is a creative subject, it is difficult to determine what is the object of assessment. Generally, the following aspects can be elicited: pupils' progress, applying new skills, willpower, process.

> GM-11: "*Pupils' diligence and their progress needs to be assessed."*

> LT-9: *"Assessment should be based on pupils' progress and their will of doing something."*

> JK-7: "*For me the most important thing is the will – will to do, will to create. Not to give up, if the work is not progressing too well, but keep on trying. I would not assess the final result as much as the process itself."*

> KM-1: *"What should I assess in practical work? The application of new skills, the planning of the work, originality, independent thinking and working, pupils' manual and mental development."*

Assessment methods are different. Asking, listening, and discussing are the most important factors shaping assessment. These are immediate and interactive types of assessment that can be used both during the study process as well as in the closing part of the study process or both in the formative and summative assessment. (Weeden, Winter 2002, 137)

It is didactically correct, if at the beginning of the work the teacher gives an overview of what and how pupils are going to be assessed. Especially if skills are assessed, the teacher can choose, how the assessment is carried out in the study process. In case of some techniques, only the work process and progress can be assessed, with the aim of promoting the acquisition of various techniques, yet in case of some works the appearance of the outcome and assessing it are important. Integrating knowledge and skills and understanding their importance hold a very important role in applying knowledge and skills (Dunn, Morgan, 2004, 136). Thus, in Craft it is important to pay attention that the finished objects are as functional and aesthetic as possible, so they would be used in everyday life.

It was discovered that in addition to practical jobs, pupils could also do projects, make presentations and take tests. Planning should be assessed. An important point was that assessment needs to be based on pupils' individuality and by no means should pupils be compared in Craft. In order to assess individual progress, a learning portfolio could be used, which is put together either by the teacher or the pupil. Although assessment is a comparison with a standard, the students held the opinion that assessment should nevertheless be approached personally.

> TT-4: "*The level of development of each child is different."*

MM-2*: "I think that each pupil should be assessed individually, not through comparison with others."*

In case of Craft it is important that pupils have creative freedom to perform their study tasks. Quite often in a Craft lesson there is not enough time to independently delve into one's work and analyse, since the syllabus is substantial and there is only a little time to achieve all the educational objectives. The finished handicraft objects can be beautiful and impressive enough, yet they often lack independence and creativity. Pupils generally know what they have to do to get a desired grade, so they perform the required tasks without investing in individuality and creativity in their work. It became evident that for the sake of the so called good practical result, teachers are ready to intervene in pupils' work.

GM-11: *"My teacher made a grave error, when correcting my mistakes herself. The result corresponded to the requirements, but the grade I received was „4", which she justified with her contribution to make the object „perfect"".*

Thus pupils should be inspired to have a creative approach to performing a task, which would enable to assess the readiness to work, vigorousness, motivation, and pupils' individual progress.

R.Reineke (1998) noted that the experience of assessment stays with a child with the rest of their life and it has a significant impact on pupils' ability to work also long after school. Thus the attitude of the student-respondents is clearly influenced by their experiences they had at school, especially in case these experiences were negative. The main problem has been the fact that only the results were assessed, without taking into account pupils' progress.

GM-11 "*I have slightly negative memories from my school years, because my teacher was not pleased with my works."*

TS-8 "*I could try as hard as I could and wanted, but my work was never as good as that of my class mates."*

JK-7 "*Unfortunately, in our school system it is rather common that if you are slower and cannot do things so well, you get a bad grade."*

For students assessing is the most feared aspect in the future professional life. Fortunately, it is not associated with negative memories from school years, but assessment is simply seen as a complicated process. This was specifically pointed put by altogether four students.

KM-1, GE-3: "*Assessing is one of the hardest tasks in a teacher's work."*

BO-6: *"Assessing – it's a topic that I fear the most, when I go to school as a teacher."*

Since class teachers teach different subjects, where they naturally come across with assessing, the complexity of assessing in Craft lessons is separately pointed out.

GM-11*: "Assessing Craft is somewhat complicated for a teacher."*

Different learning skills do not develop on their own, but these need to be taught and predominantly grades are a part of every subject lesson.

LT-9: "*It is important that pupils come to a lesson and leave the lesson in high spirits. A grade may not ruin it."*

Conclusions

The answer to the problem established in the title of the article would be as follows: a numerical assessment is a possibility; an oral of written evaluation is a must.

The respondents' experience from their school years was limited with only numerical assessment, because at that time the national curriculum did not allow anything else. In the respondents' opinion the simply numerical assessment did not carry all the functions set for it. If it is said that one important aim of assessment is to get feedback, then a numerical assessment probably gives some feedback to the teachers, but not so much to the pupil. This is probably where the result of the study stems from, showing that the respondents consider giving evaluations very important. The efficiency of assessment and the time it takes is dependent on the choice of methods.

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DEVELOPING PUPILS' CULTURAL COMPETENCES DURING INTEGRATED STUDIES IN MULTICULTURAL ENVIRONMENT OF PRIMARY SCHOOL

Anita Petere Dr.paed.
Riga Teacher Training and Educational Management Academy, Latvia
anita.petere@rpiva.lv

Abstract: In recent years the number of ethnically heterogeneous classrooms in educational system of Latvian schools is increasing. Classroom environment is becoming multicultural. The problem requires to look for a study model which could facilitate the development of cultural competences in the study process for the pupils of early school age by investigating pupils 'attitude to cultural elements of both their own and other nations. The results of research work proves that integrated studies based on action theory can successfully promote the developmental process of pupils' cultural competences. Curriculum integration enables primary teachers to provide a relevant context for learning, based on pupils' needs, it enhances pupils' motivation and participation by getting acquainted with values and traditions of diverse cultures. Theoretical discussion is based on Banks, J.A, Bruner, J. Dirba, M., Mall, R. statements emphasizing that mutual perception, evaluation and influence can occur only when a pupil accepts the tasks and means proposed by the educator and envisaged to facilitate the action. It is the most essential that a child understands that another world outlook and understanding are possible and can be used for his own development. A cultural competence can be defined as pupils' ability to be aware of their own and other cultural values related to interaction with others. In his turn M.Dirba formulated the development of cultural competences as a communicative cross-cultural competence comprising both knowledge on diverse social groups and processes, and skills to evaluate them critically and apply them in a certain situation and develop empathy and respect to the diverse.

Keywords: environment, competence, values, curriculum integration.

Introduction

Introduction of humane paradigm into educational strategy, which involves understanding of different cultures and the possibility to accept the diverse, causes various problems which require a solution.

Recently there is a growing trend in Latvia to send minority children to Latvian schools, thus, the multicultural environment exists also in Latvian schools.

The mentioned trend in society necessitates teachers to improve their professional competence, choose educational means for purposeful pedagogical cooperation which could promote early school age pupils' interest, emotional attitude to cultural values of their own and other nations. It means to develop and implement such study model which could facilitate the development of cultural competence in pupils. It is a new approach to both pupils and teachers and requires the revision of the existing study content and methods. In collaboration with pupils, it is necessary to create such a study model which would allow an active pupils' involvement in its planning, taking into account specific interests and needs of all children. The mentioned approach can be successfully implemented during the integrated study model where pupils learn to plan and accept diversities. In this case the skills and attitude to be acquired by pupils can be called cross-cultural competence. M.Dirba formulated the development of cultural competences as a communicative cross-cultural competence comprising both knowledge on diverse social groups and processes, and skills to evaluate them critically and apply them in a certain situation and develop empathy and respect to the diverse. (Dirba, 2006). It is a specific ability to accept patterns of a diverse culture (Edwards, 2009).

Methodology

The current research work is based on the results of previous research on teachers' readiness, desires, and problems during their work in ethnically heterogeneous classrooms. The methodological base of the research is made up by the research of action. The research paradigm is based on the research of

action which comprises a theoretical and active cycle characterized by qualitative research. The proposed methodology includes the implementation of integrated study model from the perspective of action theory. 144 pupils of early school age from 12 Latvian schools and 20 RTTEMA 4th year students took part in the research. The objective of the research was to investigate pedagogical possibilities of developing cultural competences in the pupils of early school age. The following theoretical and empirical methods were used in the research: analysis of literature, a partly structured interview in order to learn about pupils' attitude to Latvia as a value and to minority pupils who have arrived in Latvia, modelling pedagogical situations in the integrated study model.

The research comprised 3 interconnected stages.

Culture can't be learned, one must grow into it. Culture already exists in recognition of values, but values cannot be perceived with mind – they must be experienced emotionally (Jurevics, 1936).

Since school is an active developer of cultural changes it must be more open to cultural processes (Edwards, 2009).

In accordance with the theoretical statements, the pupil's activity comprises a positive emotional experience, thus, it becomes personally significant to him.

Action theory is based on statements which emphasise the material and mental unity of cognition looked upon from subjective and objective aspects because the action process takes place upon interaction of the subject and object- by means of direct and reflexive coherence. Action is such a form with the help of which awareness and the world which it reveals, correlate in real processes resulting in transition from objective reality in the fact of awareness, and the opposite – the transition of awareness fact or idea back into reality (Леонтьев, 1994).

When creating an integrated study model, it is possible to incorporate various aspects of study content in a meaningful whole. Teaching and learning become as one entity. When getting acquainted with cultural values and traditions of other nations, pupils themselves can actively get involved in the study process by discovering, investigating, comparing, creating all conditions for pupils' emotional experience and the process of developing cultural competence.

If we want our young people to be tolerant to the diverse, they must have experience with the otherness. It is stressed by American classic J.Banks (Banks, 2004) and also in integrative civil education standards Democracy and Diversity worked out by a group of international specialists in education. Diversity in democratic society today is topical because certain ethnic, religious, language, sexual orientation and disability groups are structurally or culturally privileged or restricted.

R.Mall depicts the social tendencies of the 21st century focusing on openness for mutual understanding: desire to understand and be understood stressing cross-cultural approach as attitude, philosophical conviction that there does not exist one culture for all mankind, as respect, tolerance towards the values of different cultures (Mall, 1997)

The article also uses the notion ''cross-cultural competence, 'thus, revealing the diversity of cultural competence.

Results and discussion

This process is characterized by plural thinking involving communication between cultures. A question arises: Don't we try to teach culture too much at school? If we speak about acquisition of traditional culture, then we can state that children often learn common Latvian folk songs as an ordinary short poem without thinking and understanding the wisdom of them.

During the 1st stage of the research RTTMA students carried out a survey of pupils from Form 3 about children's comprehension of folk songs and what they can tell about a famous Latvian folk song collector K.Barons. The results were not good. From 73 children from different schools only 9 children's' answers revealed that they understand the essence of Latvian folk songs.

The most typical answers can be arranged in 3 groups. (Table 1)

Table 1

Pupils' responses

Group division	Characteristics of answers
Group 1- 9 children	Latvian folk songs have been collected by Latvian people themselves. They teach us how to do everything better. All people sent folk songs to Kr. Barons who saved them and placed them in a big bookcase with a lot of drawers. There are very many small leaflets with folk songs. It is also written where the folk song comes from.
Group 2- 23 children	Latvian folk songs are about all holidays. We recite them at Christmas, Easter. There are a lot of folk songs about mummy. Folk songs can be found in various books. They are about everything. Kr.Barons liked folk songs a lot.
Group 3- 41 children	Folk songs are poems. We learn them by heart, and then we have to recite them expressively. We recite them in different holidays. We do not remember about Kr.Barons.

The discussions with the pupils of Form 3 confirm the words said by P.Jurevics already in the 30ties that culture cannot be learned, one must grow into it (Jurevics, 1936). It means that one must analyze his/her proficiency as a teacher and look for additional educational means which would help a pupil to accept and understand various cultural values. A question arises: If a pupil has to compare and select Latvian traditional cultural heritage according to specially created conditions, how the mentioned process affects the pupil's own attitude, understanding?

According to theoretical conclusions, the mentioned pupil's activity comprises a positive emotional experience, thus, the activity performed by the pupil becomes personally significant to him.

Any action comprising a necessity to assess, compare, analyze includes statements of discovery studies, which is the theoretical base of integrated study model. For instance, pupils, when getting ready for hosting guests from England, evaluate which folk songs could be more appropriate to describe Latvia better, which games to play together with the children from England. The pupils then have to look for, analyze how easy or complicated the words and rules are. Assuming that the pupils from England do not understand Latvian, it will be easier to acquire such game where the text is easier to perceive. In such circumstances Latvian children have to evaluate, analyze, think and make conclusions. The mentioned action can be characterized as a discovery study model.

Discovery action in the study process can be defined as empirical approach to the acquisition of knowledge. It is a scientific research method where practical activities develop from the analysis of an individual, theoretically designed situation, and it facilitates learning experience (Bruner, 1997).

The analyzed conclusion does not give the answer to the problem put forward at the beginning of the article that in many primary school classes minority pupils learn concurrently with Latvian children. The classroom environment changes, the teacher faces a problem how to work better. Either to stick to the statement that, if a pupil goes to Latvian school, then all study content, all out-of-class activities are focused on the things envisaged for the Latvian children or accept scientific experience that by getting acquainted with the diverse, it is possible to understand the values of own culture and evaluate it better. At present we must admit that the classroom environment of many schools is becoming multicultural.

Environment – physical and mental, social environment, the entirety of mutual attitudes and interaction which surround objects of animate and inanimate nature, ensure the presence and link (communication) between the objects (individuals), affect their existence.

The dominant of multicultural education is directed towards the promotion of awareness of the values of several cultures, broadening their horizons and develop the comprehension in pupils about the common and diverse in outlooks, values and beliefs of various cultures. Indisputably, a great emphasis is put on the skill of verbal and nonverbal communication.

In order to ensure the above mentioned approach, it is necessary to analyze the process more profoundly emphasizing how pupils develop comprehension of values.

According to David Moshman a child develops in a cultural environment. This development takes place in the process of obtaining experience. In interaction with environment, under appropriate pedagogical guidance, a child obtains personal experience (Moshman, 2005).

Awareness of mental values, various social skills in multicultural environment is connected with non-differential world perception of junior pupils and certain egocentric manifestations. .

Reposing on uniformity of upbringing and teaching process one can refer to certain interrelations in multicultural environment, as a result of which in the pupil's system of values in the new quality is reflected the ability to accept the peculiarities both in his own and other cultures.

A teacher's proficiency and readiness to change the study and upbringing content according to the peculiarities of multicultural environment in his class determine the fact that this environment becomes a facilitator of pupils' values or, on the contrary, it creates serious problems in acquisitions of regular study content.

Theoretical conclusions reveal that the development of values of their own and other cultures is based on pupils' positive emotional experience and positive attitude which determines the pupils' active involvement in the study process.

The next step of the research work comprised the assessment and selection of study content for the design of an integrated study model which provided the opportunity for the pupils to express their positive attitude, actively get involved in the planning of classes and discovery action through the content of various subjects (social sciences, the Latvian language, art and mathematics).

The beneficiaries will be both the native and minority children who learn together at school.

During the 2nd stage of the research, in order to learn about the attitude to Latvia and minorities, the 4th year students carried out a structured interview within the framework of social sciences, finding out pupils' attitude to other nations from the perspective of values. 53 children from different schools took part in this interview The results are revealed in Figures 1.,2.,3.

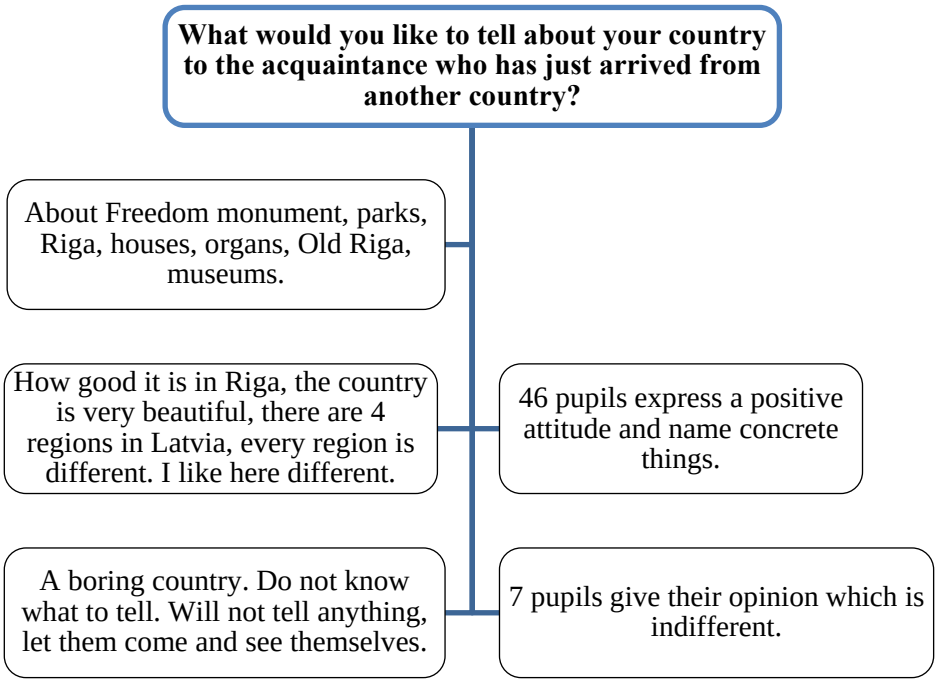

Figure 1. Pupils' attitude towards Latvia.

The essence of the second question was based on pupils' emotional experience in connection with Latvian traditions and festivals.

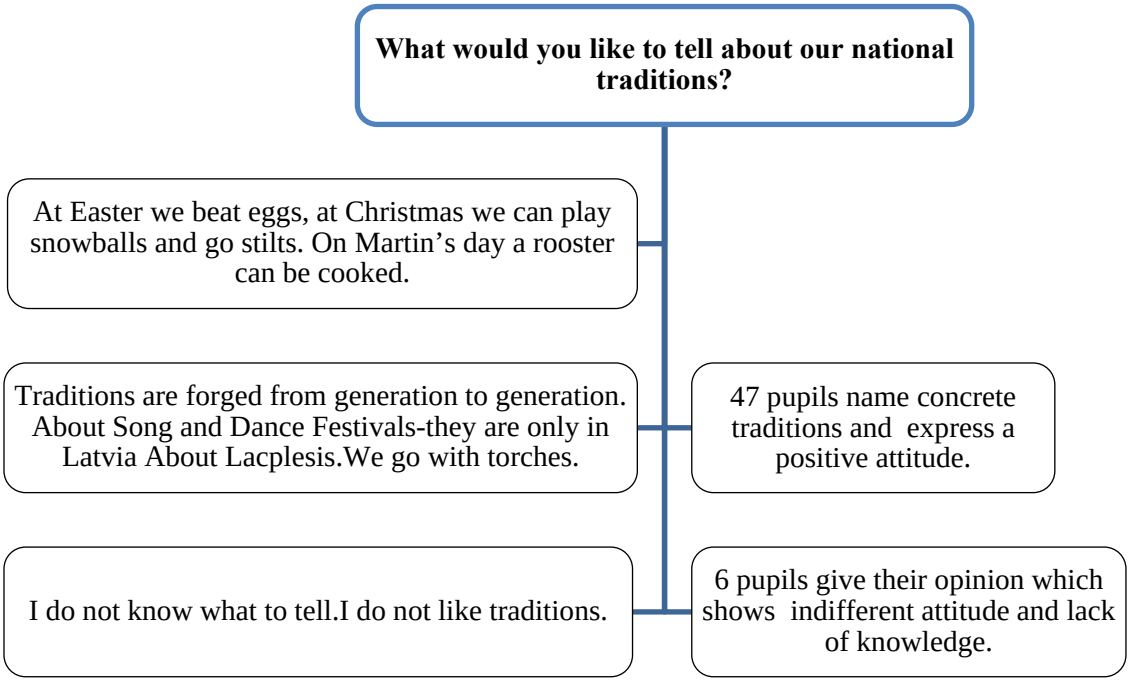

Figure 2. Pupils' attitude, emotional experience.

The third question intensified the clarification of pupils' attitude

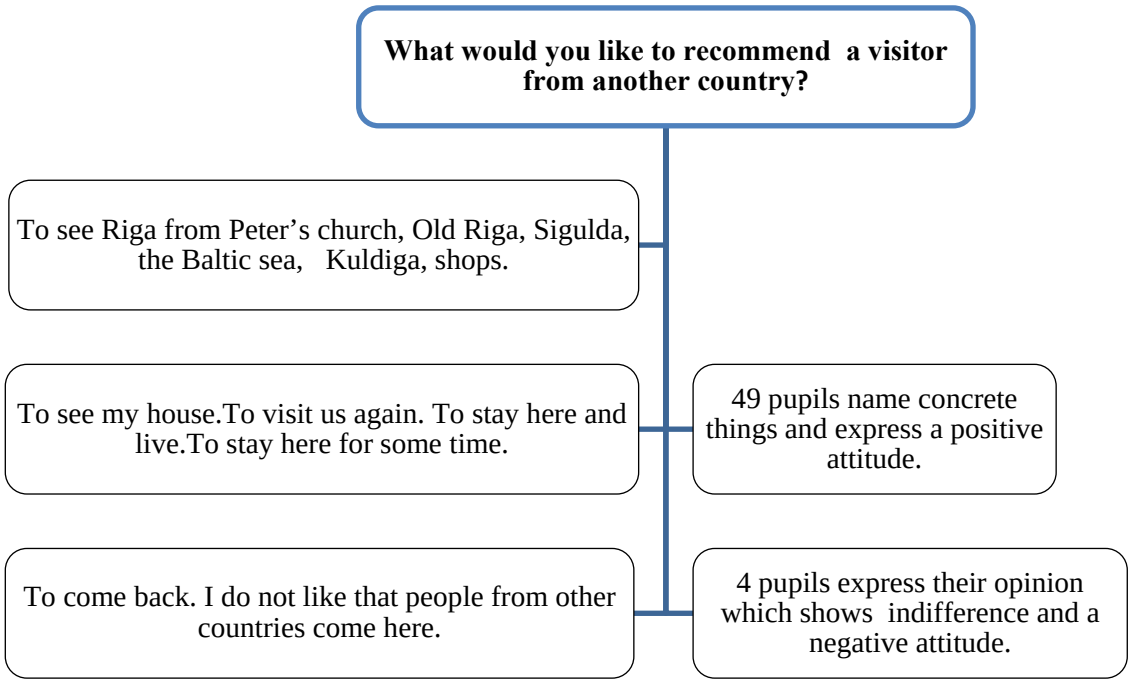

Figure 3. Pupils' attitude to the quests from neighbouring countries.

As we see from the results in all three figures, pupils attitude to national cultural elements, traditions, foreigners is positive. Analyzing the pupils' answers we can conclude that the theoretical statements which comprise correlation of emotional experience and practical activity prove true. For instance, selecting Janis day as a significant Latvian tradition, the explanation is linked with making a bonfire and eating cheese. Also Lacplesis day is linked with a torchlight procession.

The last stage of the research comprised the implementation of an integrated study model in pedagogical work with Form 3 pupils for the development of pupils' cultural competence. The aim of

integrated studies focuses on promotion of pupils' experience in accordance with their developmental potencies, interests, creating a favourable environment for pupils' development, taking into account pupils' interests and avoiding their overload, thus, facilitating pupils' cognitive activities based on their active involvement and action

Arranging the elements of subject content into thematic units, interest groups it is more possible to take into consideration pupils' interests, peculiarities of multicultural environment. According to the research by B.Beyer, R.Fogarty, (Beyer, 1987, Fogarty, 1995) we can conclude that the arrangement of content into thematic units which also comprises the integration of pupils' skills, focuses more on the process of learning than the products of learning provides a child –centred curriculum- one tailored to their interests, needs and abilities, stimulates self-directed discovery and investigation inside and outside of the classroom.

Even if there are only Latvian children in the classroom, themes, problems which can be acquired based on integrated study content, help pupils better understand the elements of their own culture and get to know and accept the diverse.

The effectiveness of the created study models for Form 3 pupils were monitored by the 4th year students of RTTEMA during their qualification practice. The designed content and methods of integrated classes were piloted in 12 Latvian schools.

The integrated study content comprised pupils' active involvement. In order to see the benefits of integrated learning, one integrated study class is analysed in the article (length of classes - 80 minutes). Of course, during the lesson children will relax. Theme of the lesson is hosting guests from Estonia. In order to draft a plan of events and plan activities, the necessary expenses, pupils acquire both content of social sciences - the skill to take an economically grounded decision- and content of mathematics –the skill to calculate all the expenses for food and cultural activities, if we know that 5 pupils from Estonia are coming and are going to spend 4 days in Latvia. The pupils have to apply multiplying with a 2 digit number and mathematical notions –'' more and less''

In its turn, when putting forward a problem – what pupils could make to leave the memories from Latvia to the guests – in a common discussion which comprises the content of social sciences, they come to conclusion that it could be a greeting card comprising both Latvian and Estonian ethnographic patterns. As the learning process for pupils is organized according to the above mentioned statements of action theory, then the pupils themselves search, analyse both Latvian and Estonian ethnographic patterns and justify which of them could be appropriate for formatting the postcard. During the analysis pupils implicitly learn about the elements of both their own national art and that of the other country. In its turn, the design of the postcard, analysis and justification comprise the content of visual art. The greeting card will not have any value if there is no text in the middle. It is up to the pupils to opt which folk songs to choose, how to format them, where to find the folk songs. A searching process takes place, pupils learn to find and justify, on the other hand, they implement the content of the Latvian language All mentioned pupils' activities include active work of the pupils themselves: the necessity to judge, analyze, evaluate, draw conclusions which, on the whole, make the elements of both their own culture and also the cultures of those countries from which the guests are coming from.

Students' carried out the analysis on the effectiveness of the conducted classes. There was a conclusion that basically all the pupils were delighted and with pleasure took part in both planning and implementing of activities.

From 107 pupils of Form 3 who, under the guidance of students, participated in the mentioned class in different Latvian schools, 91 pupils showed a special interest and delight, whereas only 16 were not interested. To sum up all the mentioned, we can conclude that pupils are open and interested in practical work related to learning about both their own culture and cultures of other nations.

Conclusions

In accordance with the analysis of theoretical conclusions and the research carried out in Latvian schools, we can state that the development of cultural competence in multicultural classroom environment comprises several interconnected stages:

- Creating emotional experience which provides students' positive attitude to values of both own and other cultures.
- Active involvement of pupils' themselves in planning of study process, selection of content, thus, providing the pupils with discovery action in the acquisition of study content.
- Discovery action can be successfully implemented in the teacher's created integrated study model which comprises incorporation of several study subjects in a meaningful whole providing the pupils with the opportunity to get to know more deeply and emotionally experience cultural values of their own and other nations.

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FURTHERING DEVELOPMENT OF PRE-SCHOOL CHILD DIALOGUE SPEECH WITH PLAY

Inga Stangaine Mg. paed.
Riga Teacher Training and Educational Management Academy, Latvia
stangaineinga@inbox.lv

Abstract: Development of pre-school child dialogue speech is significant for the interaction with surrounding environment trough various activities – daily communication, play, and learning. Topicality of the problem lays in the fact that traditional teaching process in a pre-school is organised mainly as expository monologue, insufficiently using the main activity of a child – play. Aim of the study is analysis of pre-school child dialog speech development dynamics by using play within the pedagogical process. Research is based on the analysis of theoretical literature, longitudinal observation and data processed with the SPSS, moreover results of the study on use of a play in the development of child dialogue speech were analysed and interpreted. Results acquired within the research show that development of child dialogue speech takes place more successfully if acquisition of it engages play and teacher in pedagogical process ensures active communication of a child in both real and simulated play situations.

Keywords: dialogue, dialogue speech, play.

Introduction

Particular place in the development of a child is taken by dialogue creating and containing inter-personal relationships that are directed towards cognition and self-examination. Dialogue is a school for acquiring mother tongue and learning socialisation. Apart from being a form of speech, dialogue is also an expression of diverse people behaviours.

Participation in a dialogue takes place with the help of dialogue speech, acquisition of which is a precondition necessary for proper development of a child and his/her activity trough the communication with surrounding people. High level of mutual understanding greatly facilitates the formation of positive relationships among people: individual is ready to establish dialogue, he/she is open for various beliefs and observes cultural norms.

Main activity of a pre-schooler is playing. Functions of a play ensure development of a child as a whole. Within a play, child cognizes himself/herself and the world and expresses own attitude towards it (Dodge, Koralek, 2002). Therefore it is difficult to overestimate significance of a play in facilitation of child's communication and dialogue speech. Play is the one trough which child acquires mother tongue in context with practical activities, and inaccuracies of his/her speech are not related to unpleasant consequences, as it tends to be in studies (Брунер, 1987).

The topicality of the problem lays in a fact that teaching process in pre-school is organised mainly as expository monologue, insufficiently using play and game in the facilitation of child dialogue speech. Deficiencies of communication skills and inactivity of speech burden children to acquire process of free communication completely, thus obstructing development of the speech, thinking and cognition, delaying acquisition of knowledge as well as leaving negative influence on improvement of personality and behavioural habits.

Aim of the study: analysis of pre-school age children dialogue speech development dynamics by using play within the pedagogical process.

Hypothesis of the research: development of pre-school child dialogue speech takes place more successfully if teacher in pedagogical process ensures active communication of a child in both real and simulated play situations.

Methodology

Study engages analysis of theoretical literature, longitudinal observation, processing of the data with SPSS, as well as it includes analysis and interpretation of the results acquired within the research on

the use of a play in the development of child dialogue speech. The study was conducted in Riga pre-school education institution X during the time period from 2010 till 2012. Research engaged 43 children of middle and older pre-school age (aged between 4 and 6). Within the fist stage of the research children dialogue speech skills were found out with the help of findings experiment based on the pre-developed criteria. Within the second stage of the study a formative experiment covered complex of activities for the development of child dialogue speech. At the end of the investigation, children dialogue speech skills were evaluated repeatedly and conclusions made.

Results and discussion

Dialogue is one of the forms of connected speech, which, unlike monologue, engages interaction of replicas and statements between two or several persons (Vigotskis, 2002).

Dialogue is where language skills of a child are improved as well as skills to plan own communicative behaviour in contact are formed (Казаковская, 2006, 199).

Information received in a dialogue is processed: perceived, understood and interpreted. In the same time, trough the process of information exchange person learns to listen and treat the dialogue partner with tolerance, understand himself/herself and other people. When characterising the mechanism of understanding in dialogue, scientist N. Saprigina breaks the activity of addressee into three phases: perception, understanding and effect (Сапрыгина 2003, 164-182) (Figure 1):

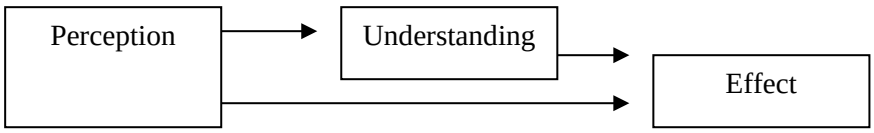

Figure 1. Mechanism of understanding in dialogue (according to N. Saprigina).

Thus dialogue speech is based not only on the sequence of words and sentences, but also on the sequence of ideas that is expressed in words and well-formed sentences, replicas.

During the pre-school period, while child is growing and developing, progress of the dialogue speech is furthered trough children plays and games.

When analysing children play, it should be noted that word ‘play’ has not been scientifically substantiated. In Latvian and English, unlike in Russian and German, there are two notions – ‘play’ and ’game’. Many authors are using the same term to describe various activities, thus some controversies arise (Cook, 2000, 109).

Substantiated definition of a play and game has been developed by the American scientist H. Schwartzman. A free play of children, which is created and initiated by them, H. Schwartzman calls the ‘child-structured play’. Team games, board games and other well-structured plays, which are shown to children by adults and which possibly need support from parents or teachers, regard plays (games) structured by adults (‘adult-structured’) (Schwartzman, 1985, 11).

In child-structured plays (role plays, dramatic plays) children dialogues are longer, last longer and are more detailed, because interest of children is attracted by the role in a play, play story and often also materials used – toys. Role, story and materials used are components of the role play. During the pre-school age, in environment, where most of dialogues arise within the context of role play, a common knowledge on daily activities, e.g., cooking or shopping, is the communication subtext. Children having common contextual knowledge are keeping longer conversations and their language is better developed than if they did not have such knowledge (Hoff, 2009).

When performing a role, child gets into various situations that directly or indirectly exercise their speaking skills, of which also skills of dialogue speech – pre-schooler has to be able to continue started dialogue, express clearly, coordinate own answer with the question asked by the other role and content of the utterance, as well as to invent new situations.

As child grows up, role conversations mainly are verbal, still he/she has emotional attitude towards any conversation partner that manifests itself in a form of non-verbal information. Child (role) in

accordance with the own emotional attitude towards what has been said and other role consciously and unconsciously chooses a distance, eye contact, pantomime, voice intonation, pose, movements and gestures that in line with the structure of the role play manifest themselves in play activities, imaginary situations.

Children communication during a play can be observed in the relationships of two kinds – role relationships and children relationships in reality.

Role relationships are related to the fact that child performs his/her role, cooperates with other roles: how teacher is treating students, how policeman is treating drivers, how salesperson – customers. When playing various roles, child gets deeper insight into the relationships between people. He/she starts to understand that each role has its rights and obligations. Child indirectly acquires various models of mutual relations and behavioural norms that are facilitated by relationships between roles – main role and subordinate – and real relationships between children.

Real relationships become apparent in assignment of roles, conflicts, guidance etc. They are particularly evident at oldest pre-school age, as children are participating in common plays because they are playing not only next to each other, but also together.

Child's ability of adequate communication, capability to express own opinion by asking and answering questions, exchanging ideas, persuading and influencing, giving advises and evaluations allows determining a quality of their communication and dialogue speech skills.

Compilation of pedagogical and psychological literature on development of children dialogue speech (Hoff, 2009; Казаковская, 2006; Бизикова, 2008) resulted in several criteria characterising dialogue speech of a child:

- ability to use language and speech in various situations;
- ability to establish dialogue and react on reported adequately;
- ability to use variety of incentive replicas;
- ability to communicate in a play.

The first three criteria are characterised by features of child's language development – language expansion, ability to express logically and in related manner, speak at a normal pace, using dialogue intonation and skills of a dialogue formation – to participate in communication, be able to and know when and how conversation can be started with known and unknown people, to maintain and conclude conversation, considering the communication situation and conditions, to listen and hear conversation partner, to show initiative in communication, play, to re-ask, to show own attitude towards subject of the conversation – to compare, express own opinion, to agree or oppose with substantiated arguments, to ask and answer.

4th criterion is characterised by the child's attitude towards play mate, ability to come to an agreement with the play partner on common activities, ability to solve conflicts, activity in play dialogues.

Evaluation of the child dialogue speech skills was made with the help of qualitative and quantitative characterisations that meet numerical indicators in point system:

- 4 points – highly expressed indicator, mentioned criterion was observed in child's speech and behaviour always;
- 3 points – sufficiently expressed indicator, can be observed in child's speech and behaviour frequently;
- 2 points – moderately expressed indicator, can be observed in child's speech and behaviour rarely;
- 1 point – poorly expressed indicator, can not be observed in child's speech and behaviour.

Research data acquired by observing child-structured play, children cooperation in a play and their speech cooperation, dialogue arising between children during time, which in pre-school is devoted to playing, are significant and ensure objective assessment of the research information. Observation results helped in qualitative and quantitative evaluation of each dialogue speech development indicator (Table 1).

Table 1

Statistical indicators of skills acquired by experimental group

Statistics	Ability to use language and speech in various situations	Ability to establish dialogue and react on reported adequately	Ability to use variety of incentive replicas	Ability to communicate in a play
Valid	43	43	43	43
Mean	**2.7**	**2.3**	**2.3**	**2.1**
Median	2.8	2.3	2.2	2.0
Mode	3	2.5	2.2	1.83
Std. Deviation	0.475	0.415	0.520	0.487
Skewness	-.080	-.729	-.131	-.348
Kurtosis	-1.122	.671	.-858	-.651

The mean characterises average points gained in group. In the 1st skill, out of maximally possible 4 points the group acquired on average 2.7, and it is criteria that got the highest evaluation in the group. Median is the value dividing the group into two similar parts, i.e., 50 % or half of the group in the 1st skill have 2.8 points or less and the other half (50 %) – 2.8 points and more. Mode – most common value in the group. The most common evaluation in the 1st skill is 3.0 points.

At the age 4 - 5 the number of words, especially of nouns, verbs, pronouns, as well as adjectives, used in speech continues to increase rapidly. Observations show that children are able to tell about themselves, own thoughts and important things. Wider vocabulary is observed for children, who travel together with parents and do it often (e.g., respondents 11 and 42). Such children are using English words in speech, they know names of countries, various means of transportation, are able to tell about own experience.

Children at this age are tended to start using simple and compound sentences that meet the rules of grammar. Still several children have difficulties to formulate their thoughts without repeating syllables and words (39.5 %). This feature is more characteristic for shy, self-conscious or agitated children. When nervous, they are repeating words, can not formulate the idea, are repeating words 'I', 'and' (e.g., respondents 2, 3, and 7). Observations show that for children it is easier to formulate the thought in a play, where he/she can feel free.

Nevertheless many psychologists believe that at the end of the 5th year child is able to pronounce all sounds of the mother tongue correctly, results of the observation show that almost 50 % of children are not pronouncing all sounds precisely.

Analysis of the 2nd criterion on pre-school children ability to establish dialogue and react on reported speech shows that the most often children are asking questions of practical nature that are related to daily activities, process of some task or duty. Child is using questions not only with an aim to find out something, but questions have also other specific characteristic features, i.e., it helps to attract attention (e.g., U. is asking teacher: *"Which of the children is your favourite?", T: "All children!", U: "I know that all, but which one is your favourite?", T: "It is difficult to say which one.", U: "Maybe that's me?"),* re-sure about something by indirectly reminding something forgotten, to start the conversation – dialogue. Also answers may be different – nodding, phrase, sentence, narration, counter question.

At this age children already are able to establish small dialogues that are related to play activities, which in the same time are helping to develop story of the play. Still observations show that often children dialogues do not have thematic link between the replicas. Children do not express neither positive, nor negative attitude towards the conversation partner replicas. Each of them is talking about

own ideas, not reporting to the subject initiated by the peers. Mentioned observation is illustrated by the example of dialogue between two children playing next to each other, but each of them has his/her own doll:

M: "Yesterday I did not sleep at midday, because my mom was coming to pick me up."
E.: "I was at the doctor today, it did not hurt."

Similar exchange of replicas in theory is called "pseudo-dialogue".

Observations showed also some other type of behaviour during dialogue that is characteristic to many children. They are listening to reported silently, not expressing own attitude towards it verbally, nevertheless they obviously did understand it. E.g., E. to the replica of the teacher assistant: *"I'm tired, have no power at all!"* – stayed silent, although her look expressed sympathy. While, when replying to what adult reported, he did not say it in words. It may be assumed that children simply do not know or can not express own attitude in such situation.

Research showed that children face the greatest difficulties in respect to the skill of dialogue speech covering not interruption of conversation partner, patience towards opinion of the other person. It is particularly characteristic among active, knowing and talkative children.

When analysing the 3rd criterion, it should be mentioned that separate indicators of this criteria have rather low evaluation. Children yet cannot argumentatively refuse from the incentive of partner without offending play mate. Observations indicate that children are tended to react more tolerantly on the incentive of an adult, still often they ignore undesirable encouragements, by not answering them verbally and also adequate action does not follow.

Children at middle and older pre-school age navigate trough greeting, parting and expression of gratitude sufficiently freely; still incentive replicas as request or apology are used unwillingly. Acquisition of several encouragement replicas (advice, offer, invitation) is not included in the curriculum, however none of common activities can be imagined without them.

Statistical data show that 4th criterion (communication abilities in a play) received the lowest evaluation. 37 % of respondents are rarely expressing their attitude towards the play partners. More detailed analysis of each respondent shows that reasons behind the adverse treatment of play mate may vary – relationships in family, low self-esteem of a child, disbelief to himself/herself, inability to play together, such children often prefer solitary or parallel play.

16 % of children are characteristic with high activity when staging play, creating images of play participants and performing play activities. They can be typified as group leaders. 32 % of respondents often form a group of two, thus creating stable union for playing.

When children start common play, communication skills are of a high significance, as it is ability to come to an agreement with a partner on common activities that may be a challenge for a child aged 4 - 5.

Observations of the children plays indicate that more durable and longer lasting dialogue is established between two play mates. The more children participate in a play, the shorter dialogues are established.

Children at this age find it difficult to comply with the allocation of roles, as "but I want" or "I don't want so" are dominating. When approaching the age of six, children are becoming interested in games with rules, which they transmit also to the role plays. Thus this is the age, when children start using 'more democratic' types of role allocation.

During the allocation of roles and toys as well as in situations, when aims, motives, activities, and impulses differ, disagreements and conflicts will surely arise. Data of the study show that 14 % of children can not solve conflicts. In such cases help of the teacher is necessary, because often communication character and specifics of mutual relationships are determined by the self-confidence of the conflicting child. It is significant to bear in mind that, when children are acquiring new types of activities that are related to child-structured play, their reflection is increasing. It is guided to notice play partner. Teachers should remember that he/she should not avoid the conflict, but solve it.

Development of pre-school child dialogue speech largely depends on the teacher's competence, empathy, his/her ability to perceive, accept and support child adequately, in the meantime furthering optimal relationships with peers and adults in various communication situations.

Formative experiment, conducted with an aim to further development of child's dialogue speech, included complex of various activities for support and stimulation of children plays. Pedagogical process was implemented trough:

- play-classes (a way how education can be organised, within which acquisition of the curriculum is based on plays and games as training materials (Anspoka, 2011));
- child-structured play – role play, dramatic play;
- adult-structured play – games and play exercises for furthering dialogue speech of a child.

In parallel with games and exercises offered by adults great attention was devoted to child-structured plays, particularly encouraging child-structured play, during which children are exercising language use and learning to encourage dialogues.

Process of dialogue speech acquisition was implemented within three stages.

1. Child uses pre-developed and learned replicas (reproductive stage).
2. Combination of reproductive and productive speech (constructive stage).
3. Independent encouragement of dialogue, creative use of acquired skills in a play and daily life (creative stage).

Cooperation between an adult and a child in a play may vary. Child dialogue speech skills will be developed if adult will observe and analyse children in play, stimulate and support more shy children, participate, help child with own example, create suitable environment for play, devote time for child-structured play. Adult's participation in a play, support, advice, and suggestion furthers child's concentration for performance of more complicated play (Брунер, 1987).

At the end of formative experiment, repeated observation and evaluation of children (43 respondents) dialogue speech skills was carried out (Table 2):

Table 2

Statistical indicators of dialogue speck skills at the end of formative experiment

Statistics	Ability to use language and speech in various situations	Ability to establish dialogue and react on reported adequately	Ability to use variety of incentive replicas	Ability to communicate in a play
Valid	43	43	43	43
Mean	**3.5**	**3.2**	**3.3**	**3.1**
Median	3.4	3.1	3.4	3.0
Std. Deviation	0.45	0.39	0.49	0.46

Evaluation of the formative experiment results allowed to conclude that speech of the children with highly evaluated dialogue speech skills (on average 4) is well-developed, such children formulate their idea without unnecessary repetition of syllables and words, child is active in communication, during a play he/she is equal communication partner, is able to listen and understand speech directed towards him/her, to form communication considering situation, and to start conversation in various ways (asking question, sharing impressions, opinions, politely expressing wishes and offers). Such child is able to maintain communication, come to an agreement with a partner on common subjects by adequately reacting on what conversation partner has said, is able to solve conflicts in socially acceptable way. Moreover, child fulfils the rules of dialogue formation, maintains positive tone in communication with adults and peers.

Respondents, dialogue speech skills of which were evaluated with sufficiently (on average 3 points), are characteristics with the highest activity in the incentive remarks, they are able to use positivity in pantomime and voice tone, expresses positive attitude towards play partners. In respect to the answer position children not always are tended to 'develop' offered subject, they can change it or simply stop communication. Nevertheless in most situations children more or less easily encourage dialogue and continue it, still rules of the dialogue formation sometimes are not observed (child may stop it without listening till the end).

Whereas respondents, dialogue speech skills of which were evaluated with moderate (on average 2 points), are typical with maintaining conversation, which was started on other person's initiative, nevertheless willingness to continue conversation is low, child rarely initiates communication. He/she does not demonstrate a wish to share impressions, reaction to the communication addressed towards him/her not always is adequate. Child knows the rules of dialogue establishment, while observes them depending on situation. In communication these children are typical with situational goodwill expression. Communication is obstructed by insufficiently developed speech, sounds are not pronounced precisely and that interferes perception of what has been said.

Evaluation of the dynamics of child's dialogue speech development was based on Student's t criteria for comparison of two independent groups. Results of the findings experiment (1st observation) were compared with the results of the formative experiment (2nd observation). Evaluation of the acquired results shows that respondent skills at the end of formative experiment were higher in all criteria. Results of the t tests indicate statistically significant differences (sig < 0.05) in all criteria (Table 3).

Table 3

Comparative analysis of children dialogue speech development

Criterion	Mean		Std. Deviation	t test value	Sig (2-tailed)
	1st observation	2nd observation			
1st	2.7	3.5	.47 .45	-17.3	0.00
2nd	2.2	3.2	.41 .39	-15.9	0.00
3rd	2.5	3.3	.52 .49	-15.3	0.00
4th	2.0	3.1	.48 .46	-19.6	0.00

Acquired results led to the conclusion that in criteria above there are statistically significant differences between 1st observation and 2nd observation, generally there are statistically significant differences among all mentioned (last column sig < 0.05) criteria. Thus dynamics in the development of child dialogue speech may be characterised as statistically significant. Consequently, hypothesis that development of pre-school child dialogue speech takes place more successfully if teacher in pedagogical process ensures active communication of a child in both real and simulated play situations was confirmed.

Conclusions

- Development of the dialogue speech is long and complicated process that accumulates all speech achievements of a child, his/her experience of social relationships. This process requires extensive and purposeful work during the whole pre-school period. Dialogue is acquired in the same way as any other activity, by cooperating with adults and peers – carriers of communicative culture.

- There are controversies in theoretical literature in respect to the definition of terms ‘play’ and ‘game’. Therefore free play of a child was described as ‘child-structured play’, while games with rules were defined as plays or games structured by adults (‘adult-structured’).
- Within the development of middle and older pre-school age children (4 - 6 years) dialogue speech effectiveness is increased by developing child-structured play together with skilful planning of adult-organised games, by observing regularities in children development and fulfilling tasks necessary for the facilitation of the dialogue speech development.
- Evaluation of the acquired results indicates that respondent skills at the end of formative experiment are higher in all criteria used for assessment of the dialogue speech. Results of the t test show that there are statistically significant differences between the results of the findings experiment and data of the formative experiment.

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STUDENT-STUDENT INTERACTION DURING GROUP WORK TASKS IN HOME ECONOMICS LESSONS

Jaana Taar MA
Tallinn University, Estonia
jaana@tlu.ee

Abstract: Collaborative learning is emphasized in the new National Curriculum in Estonia. Subject teachers are more than ever expected to offer learning tasks where students can actively participate; think together and find solutions through active collaboration. Students do not learn when they simply work together in a group, rather when they are engaged in various forms of pedagogical interaction. New analytical tools are needed to identify the various forms of interaction during home economics lessons, and especially when students are engaged in collaborative tasks. The impact of interaction on learning has been previously studied in several contexts, mainly in studies related to second language learning but also in other subjects. In this article number of alternative approaches and particular tools for investigating classroom interaction on different levels and various viewpoints are introduced and compared. As a result, suitable method of analysis is recommended for investigating the socio-cultural student-student interactions during home economics lessons.

Keywords: home economics, classroom interaction, socio-cultural learning

Introduction

Comparative study on Estonian national curricula (Tamm & Palojoki, 2012) shows, that the new National Curriculum for Comprehensive School (Põhikooli riiklik…, 2010) emphasizes the need to encourage socialisation and collaborative tasks. Teaching and learning according to the guidelines of the new curriculum is a social process, taking place in physical, mental and social interaction; which reflects the need to turn into socio-cultural perspective of learning (Vygotsky, 1978). This perspective emphasizes that human life has always social and communicative nature which is influenced by cultural and historical factors, knowledge is shared and people jointly construct understandings of shared experience (Mercer, 2004). Social interactions, by socio-cultural perspective, stimulate group members to think together. Spoken language is used to transform individual thought into collective thought and action, but also to make personal interpretations of shared experiences (Mercer, 2002). Even more, L.Radford and W.Roth (2011) stress that:

> interaction is the founding process of the self, the constitutive process through which I become a continuously transforming and transformed entity ... not as a substance, not in a substantive sense of être (to be, essere); rather in the sense of the never ending and always changing étant (bi-ing), a being-with-others.

Therefore the student in interaction is neither a passive recipient of knowledge offered by the teacher, nor an independent thinker who arrives at his own solutions, but rather a participant in learning activities shared by children and adults (Kozulin, 1998)

Studies of collaborative learning and peer tutoring in different instructional settings have identified specific forms of interactions that seem to promote learning, like providing explanations, asking appropriate questions, exchanging ideas, justifications, speculations, inferences, hypothesis and conclusions (Kumpulainen, Wray, 2002). These forms may occur more frequently in collaborative learning than in individual conditions (Dillenborg, 1999). However, there is no guarantee that those forms occur in any interaction, meaning that group work does not always bring students to interact and learn from each other. Therefore one can distinguish collaborative interaction from cooperative interaction as the word “cooperative” indicates doing things at the same time (in a same place) but not necessarily with each other. C.Scott et al. (2009) bring out another reason for interaction to occur. Talk between students should not be competitive in order for learning to take place. In addition it is important that students should not get the impression that learning is about being right or being seen to be right, rather, that they need to work together to find the best answer for the question.

There is a difference between everyday and school-based interactions. This difference lies in the fact that classrooms are – or at least should be – intentionally oriented towards learning. This is not necessarily the case in everyday conversations in out-of-school context, although learning can and often does take place in such context as well (Kumpulainen, Wray, 2002). School life should give students access to various ways of using language which their out-of-school experiences may not have revealed, enabling them to use language more effectively as a means for learning, pursuing interests, developing shared knowledge, reasoning and solving problems together (Mercer, 2002). Students can discover divergent ways of approaching phenomena and solving problems through interaction, especially while sharing their views and perspectives with others. Moreover, they can build on each other's contributions to re-construct new interpretations and views that were yet to be discovered (Kumpulainen, Wray, 2002). They can test their understanding against that of others (Mercer, 2002), and acquire the key mental tools of their culture (Scott, Meiers, 2009). It is interesting that students can benefit from interaction even when they do not actively participate in it. Hearing concepts and ideas expressed in the language of a peer or seeing the process of discussing and understanding what was demonstrated can help the "passive learner" to internalise these tools and make them a part of his or her own mental tool kit (Scott, Meiers, 2009).

Collaboration in classrooms can occur also through teacher-students interaction but in this article I will focus on the student-student interaction. The word "interaction", in this article, is used to identify spoken language as a socio-cultural tool used by students during classroom activities. I have ruled out non-verbal interaction, because my main interest is focusing on how the students discuss and make questions based on the learning task at hand. Their use of concepts reveals also their ability to use language as a tool in their learning. Similarly other words are used by different researchers instead of interaction, in some cases with some distinctions within the meaning of the word. Discourse (Kwon, Kellogg, 2005), conversation (Tan, Tan, 2006), communication (Soller, 2001) or dialogue (e.g., dialogic teaching by C.Scott (Scott, Meiers, 2009); classroom dialogue by A. Stables (Stables, 2003)) are commonly used, in addition more specific expressions like exploratory talk (Edwards, 2005; Mercer, 2002), travel of ideas (Saxe, Gearhart, 2009) or classroom talk (Alexander, 2005; Renshaw, Brown, 2007). N.Mercer (2002) suggests taking it even further, using "interthinking" to express language as a means for thinking collectively. Also the context for studying interaction varies. It is often associated with knowledge building, peer learning/teaching, group work, active learning, collaboration or scaffolding.

Materials and methods

This article gives a review of studies interested in different levels of interaction. My main goal is to recommend suitable method for investigating the socio-cultural student-student interactions during home economics lessons. For that, a meta-analysis of current scientific, methodological literature has performed; including 42 studies from several countries (Table 1).

Selected publications study interactions in various school subjects. Numerous studies are interested in interaction during foreign language learning (Mack, 2012; Kwon, Kellogg, 2005; Storch, 2002) but as these are dealing mostly with linguistic problems, only few of these are included in this article. More attention is paid to subjects like mathematics (Emanuaelsson, Sahlström, 2008; Schwarz, Linchevski, 2007; Webb 1982a; Webb 1982b), science (Tan & Tan, 2006), physics (Tiberghien, Malkoun, 2009), music education (Burnard, Younker, 2007) and especially home economics (Venäläinen, 2010). There are also many studies where the school subject is not specified (Renshaw, Brown, 2007; Kutnick, Ota, 2008) or that are not interested in a concrete subject. In the latter case the data were gathered during different lessons (Dukmak, 2010; Gillies, 2003a,b). Interaction studies have also been done in pre-schools (Köning, 2009; Kumpulainen, Aalsvoort, 2003) and at the university level (Mack, 2012; Kaasila, Lauriala, 2010; Storch, 2002; Soller, 2001), as well during after school clubs (Sohmer Michaels, 2009). In addition, interaction patterns are widely investigated in the context of computer-based learning (Tan, Tan, 2006) and are therefore mainly left out of this study as they do not represent regular classroom environment.

Results and discussion

Largely, interaction studies can be divided into equally performed qualitative and quantitative studies, but also mixed methods are used (Storch, 2002; Forman, 1989). It can be said that quantitative studies are well discussed and better explained following the data analysis (Gilles, 2003a,b). They often present detailed coding categories or analysis tool like CAFIAS in Y.Jong-Hoon' (Jong-Hoon, Jwa, 2010) or CSPAR and SPRinG in P.Blatchford' (Blatchford, Bassett, 2011) works. Methods of analysis in qualitative studies, however, are often inductive, meaning that they expand and get more focused during the process of analysis. Despite the fact that categories are not known in advance they need to be introduced in the research report clearly so that the study would be repeatable if needed. In the articles of qualitative studies, which were chosen for this paper, the methods of analysis and the categories revealed during the analysis were often confusing or not mentioned at all.

Different methodological influences can be seen in the studies of interaction, which guide researchers' choices, research questions, data collection and analysis. Quantitative methods, like text analysis or systematic observation, enable quick and extensive analysis. Some quantitative methods allow researcher to make comparisons and statistical analysis too (Jong-Hoon, Jwa, 2010). As a weakness in quantitative method, Mercer (2010) brings out that actual talk and context may be lost in early stages of the analysis and pre-determined categories can limit the sensitivity of the analysis. Qualitative methods (like ethnography, conversation analysis, sociolinguistic analysis or linguistic discourse analysis) on the other hand enable to remain to the actual talk. This kind of studies can investigate joint knowledge construction; analysis can be expanded if needed to include new aspects of communication that emerge during analysis (Mercer, 2010). As analysis categories are not known in advance, it is difficult to use qualitative methods to handle large set of data. So, qualitative researchers elaborate with some cases and use concrete illustrations in their reports (Venäläinen, 2010).

Mixed method approach, like socio-cultural discourse analysis, helps to overcome the weaknesses that quantitative and qualitative methods have. Researchers have found ways how to make use of the strengths of both approaches and combine them. Socio-cultural research is not a unified field, but those active in it treat communication, thinking and learning as intertwined processes which are shaped by culture. "Discourse analysis" by Mercer (2004) is used to refer to several different approaches for analysing language with quite different methods (both qualitative and quantitative). Within educational research, it usually refers to the analysis of episodes of talk in social context. It is less than "linguistic" discourse analysis focused on language itself; instead it focuses on its functions for the pursuit of joint intellectual activity. Good examples of well presented mixed method research, from the articles studied, are M.Kwon and D.Kellogg (2005) and K.Kumpulainen (Kumpulainen, Aalsvoort, 2003).

The broader methodological principles determine not only how data is analysed, but what kind of data is gathered (Mercer, 2004). Audio- or video-recordings and observation are most widespread data collection methods in the studies analysed herein. Also different types of interviews are widely used; like stimulated recall interview (Järvelä, 1995; Kumpulainen, Mutanen, 1998), semi-structured interview (Dukmak, 2010; van del Pol, Volman, 2011) or focus-group interview (Velez, Cano, 2011). In addition various written artefacts (Storch, 2002; Kaasila, Lauriala, 2010), achievement or ability tests (Gilles, 2003a,b; Kutnick, Ota, 2008), field notes (Kumpulainen, Mutanen, 1998; Forman, 1989) and pre- or post-tests (Reznitskaya, Kuo, 2009) are used to gather data for analysing interaction.

The studies analysed in this paper are mostly handling interaction on a social level but in some cases talk is also analysed from an individual's perspective. For example, J.Conteh (Conteh, Kumar, 2008) explored the links between language and learning whereas N.Mercer (Mercer, Wegerif, 1999) studied children's effective use of language as a tool for reasoning. Three ways of interaction are found in the studies – teacher-student interaction (one-to-one), student-student interaction (one-to-one or in a small group) and whole class interaction where both teacher and students are involved. P.Blatchford (Blatchford, Bassett, 2011) investigated the relation between teacher-student interaction and students' classroom engagement. Teacher-student interaction has also been studied from teachers' perspective. P.Seitamaa-Hakkarainen (Seitamaa-Hakkarainen, Viilo, 2010) were interested in how teacher organizes collaborative work whereas S.Järvelä (1995) looked at the problem solving skills mediated by teacher.

Student-student interaction analyses were often carried out to identify connections between group interaction and students' knowledge construction (Schwarz, Linchevski, 2007), processes or dynamics of peer interaction (Kumpulainen, Mutanen, 1998), or interactive patterns in students talk (Webb, 1989). Yet more specific aspects are studied, like J.Velez (Velez, Cano, 2011), where students' perceptions of peer teaching were examined. Analysis of the whole class interaction is mostly related to students participation, for example, L.Mack (2012) did action research study to encourage equal classroom participation; J.Emanuelsson and F.Sahlström (2008) were interested in the relationship between learning and participation in classroom interaction; whereas M.Kovalainen and K.Kumpulainen (2005) approached participation in the light of collective problem solving, group investigation and open-ended dialogue.

The type of interaction the researchers are interested in also influences the analysis, that is to say categories, which are found from data. In this article, only the categories that are revealed from qualitative researches and also introduced in the reports are highlighted. Å.Wedin (2010) analysed the data gathered from teachers' perspective. She pointed out call-responses used by teachers. Teachers used response for repetition; confirmation; content-question; or completion. Other studies, were coding was explained, were interested in students interaction. P.Le (2007) investigated how capable the peer should be in the group work tasks for the zone of proximal development to occur. In this study the data analysis revealed three major themes: the more knowledgeable peer organized group work; participated in group; and how the more knowledgeable peer explained unknown words and concepts. On the other hand, N.Storch (2002) interested in the nature of pair interaction. In this study the main data-driven patterns of interaction were collaborative and dominant/dominant interaction. Soller (2001) brought out three collaborative learning skills (conversation, active learning, and creative conflict) that promote effective peer interaction. Yet three more categories were revealed by S.Tan and A.Tan (2006) who analysed interaction between learners in the light of turn taking in talk; parties, alliances and talk; institutional categories and the question of identity. P.Renshaw and R.Brown (2007), however, were looking for formats of classroom talk where "everyday" and "scientific" concepts were brought together. They identified four formats for analysis: replacement; interweaving, contextual privileging; and pastiche.

Also other categories have been pointed out in the literature that can be taken into consideration when analysing students' interaction. For example, R.Alexander (2005) presented forms of oral expression and interaction which represent talk while students are learning: narrate; explain; instruct; ask different kinds of questions; receive, act and build upon answers; analyse and solve problems; speculate and imagine; explore and evaluate ideas; discuss; argue, reason and justify; and negotiate.

In addition, K.Kumpulainen and D.Wray (2002) have introduced three-dimensional analytic method where interaction is seen as a complex social phenomenon composed of non-verbal and social properties in addition to its verbal characteristics. First of all, functional analysis of verbal interaction reveals the purposes for which language is used. Language functions, that are often (but not always) identified in peer group interaction, are: informative, expositional, reasoning, evaluative, interrogative, responsive, organisational, judgemental, argumentational, compositional, revision, dictation, reading aloud, repetition, experiential and affective functions (the functions of the categories are written as in the original text). Second, the analysis of cognitive processing highlights students' working strategies and situated positions towards knowledge, learning and themselves as problem-solvers. Three broad modes were procedural processing; interpretative or exploratory processing; and off-task activity. Social relationships and types of participation in peer groups are analysed in third dimension, that of social processing. Again the modes that were often revealed by data are introduced: collaborative, tutoring, argumentative, individualistic, domination, conflict, confusion.

These detailed lists of categories are not meant to be applied as such. These are simply showing the possibilities and introducing the wide range of students' use of language in the classroom setting. The specific categories revealed in the qualitative analysis are of course strongly influenced by the research questions. Therefore it is important to notice that researchers are commonly focusing only on few fragments of the interaction. They do seldom as detailed analysis as described by K.Kumpulainen and D.Wray (2002).

Conclusion

In this article, I have discussed the various analytical tools needed for investigating students' interaction during group work activities. These analytical tools enables the researcher to identify what is the quality and nature of the interaction during group work activities and what kind of participation modes and which types of interaction emerge during collaborative learning. Based on selected studies included in this meta-analysis, there are various methods for the analysis of interaction that the researcher needs to consider before conducting the study. No method is without its limitations.

To understand how interaction develops between students it is important to keep the actual talk of the students in data analysis. This leads to the need of using qualitative approach rather than quantitative approach when analysing data. For example, the dimensions and categories revealed in the study of K.Kumpulainen and D.Wray can be used to open the mind of the researcher for identifying different patterns and interaction modes in student-student talk. Concrete categories in data analysis are inductive and they are fully revealed during the process of analysis. Most importantly, these are dependent on research questions and the methodology under which the researcher works. Also, quantitative data can be used in the analysis, for example on linguistic issues. It is of utmost importance that the researcher is knowledgeable of the methods used and their corresponding methodological roots.

Considering the nature of home economics as a school subject, suitable methods for studying student-student interaction in Estonian home economics lessons should be based on socio-cultural approach. Socio-cultural approach enables to study talk and activities between students in social contexts, such as home economics classroom. Selected method of analysis should help to identify the nature of interaction as it truly happens through talking in classroom settings. To minimize weaknesses that different methods have, it may be good to turn into mixed methods research – like socio-cultural discourse analysis. This method is appropriately concerned about content, function and ways how shared understanding is developed in a social context. Therefore, socio-cultural discourse analysis or its application may be useful for the described study in the Estonian schools.

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Table 1

Summary of interaction studies in different subjects

Researcher(s)	Subject	Sample selection	Country
1. Kwon, M., Kellogg, D. (2005)	English as a foreign language	whole primary class (n=2)	Korea
2. Storch, N. (2002)	English as a foreign language	adolt students (N=33)	Australia
3. Venäläinen, S. (2010)	Home Economics	7th grade students (n=12)	Finland
4. Emanuaelsson, J., Sahlström, F. (2008)	Mathematics	whole class (n=2)	Sweden, USA
5. Edwards, J.-A. (2005)	Mathematics	secondary school classes (n=5)	England
6. Webb, N.M. (1982)	Mathematics	7th, 8th and 9th grade students (n= 96)	USA
7. Webb, N.M. (1984)	Mathematics	7th and 8th grade students (n=110)	USA
8. Conteh, J., Kumar, R., Beddow, D. (2008)	Mathematics	3rd grade students (n=8)	England
9. Forman, E. (1989)	Mathematics	4th and 7th grade students (n=50)	
10. Schwarz, B.B., Linchevski, L. (2007)	Mathematics	10th grade students (n=60)	Israel
11. Saxe, G.B. et al. (2009)	Mathematics	5th grade students	
12. Nathan, M.J. et al. (2009)	Mathematics	6th grade students (n=24)	USA
13. Burnard, P., Younker, B.A. (2007)	Musical education	5th grade students (n=69), 8th grade students (n=30)	USA, England
14. Jong-Hoon, Y., Jwa, K.K. (2010)	Physical education	elementary, middle and high school teachers (n=15)	South Korea
15. Tiberghien, A., Malkoun, L. (2009)	Physics	10th and 11th grades (n=3)	France
16. Tan, S.-C., Tan, A.-L. (2006)	Science	students in online discussion (n=14), students in labaratory (n=14)	Singapore
17. van del Pol, J. et al. (2011)	Social studies	secondary school teachers from innovative schools (n=3)	
18. Järvela, S. (1995)	Technical handicrafts	7th grade students (n=22)	Finland
19. Dukmak, S. (2010)	multiple subjects (Arabic, English, Mathematics, Science)	4th grade students (n=18)	United Arab Emirates
20. Seitamaa-Hakkarainen, P. et al. (2010)	multiple subjects (history, mother tongue, science, design and technology etc.)	4th grade students (n=32)	Finland
21. Webb, N.M. (1989)	multiple subjects (mathematics, computer sciences)	Summary of 19 different researches (1980 -1986) in grades 2 to 11	USA
22. Blatchford, P. et al. (2011)	multiple subjects (mathematics, English, science, Welsh)	primary and secondary school students (n=686)	England, Wales
24. Kovalainen, M., Kumpulainen, K. (2005; 2007)	multiple subjects (mathematics, science and philosophy)	3rd grade students (n=17)	Finland
25. Kumpulainen, K., Mutanen, M. (1998)	multiple subjects (mathematics, science)	primary school class (n=1)	Finland
26. Gilles, R.M. (2003a)	multiple subjects (mathematics, science, English)	8th grade students (n=137)	Australia
27. Gillies, R.M. (2003b)	multiple subjects (social studies, mathematics, science, English)	Summary of 5 studies (1996-2003) in grades 1 to 8 (N=976)	Australia
28. Renshaw, P., Brown, R.A.J. (2007)	Not specified	Not specified	
29. Wedin, Å. (2010)	Not specified	teachers, pupils, parents	Tanzania
30. Reznitskaya, A. et al. (2009)	Not specified	combining different researches	
31. Kutnick, P. et al. (2008)	Not specified	1st and 2nd grade students (n=980)	England
32. Mercer, N. et al. (1999)	Not specified	5th grade students (n=60)	England
33. Strandson, K. (2010)	Not specified	1st till 4th grades	Estonia
34. Sohmer, R. et al. (2009)	after school club	middle school students	
35. Kumpulainen, K. et al. (2003)		pre-school children (n=3+3) and elementary school students (n=2)	Netherlands, Finland
36. König, A. (2009)		pre-school teachers (n=61)	Germany
37. Mack, L. (2012)	Course: Advanced English	university students (n=85)	Japan
38. Le, P.H.H. (2007)	Course: English	university students (n=45)	Vietnam
39. Velez, J.J. et al. (2011)	Course: Introduction to teaching	university students (n=39)	USA
40. Soller, A.L. (2001)	Course: Object-oriented modelling	adolt students	USA
41. Kaasila, R., Lauriala, A. (2010)	Course: Subject didactic practicum (mathematics)	student teachers (n=4)	Finland
42. Zabrodskaja, A. (2007)	Course: Introduction to linguistics	university students (n=35)	Estonia

Psychology

CO-OPERATION OF LATVIA UNIVERSITY OF AGRICULTURE WITH SCHOOLS IN RESEARCH WORK

Anita Aizsila Dr.paed.
Latvia University of Agriculture, Latvia Institute of Education and Home Economics, Latvia
aizsila@llu.lv

Abstract: The article summarises experience of co-operation within three years (2010-2012) of the Institute of Education and Home Economics (IEHE) of Latvia University of Agriculture (LLU), Zemgale Region Competence Center and schools of Zemgale in consulting of research work of pupils. A topical problem – research work of pupils in the process of studies – has been investigated. Investigative process of studies offers a possibility to investigate topics corresponding to the interests of learners with deep thinking. The lecturers of the LLU support the teachers of schools in advising the learners' research work. The aim of the article is conscious and substantiated necessity for co-operation of the university and schools in development of research papers of pupils. The methodological basis for the research is theoretical pedagogical statements of learners' research work as a component of the process of studies. In the article 439 research papers of learners are theoretically and empirically analysed, summarized and evaluated. For the analysis descriptive statistics is used. The influence of society on the development of the learners' research skills has been clarified. The research work competition winners get LLU certificates that allow for entering the faculties of the university without competition after finishing school. Receiving of the certificate is a stimulus for further research. 42% of the learners who were invited to the state conference from Zemgale region received awards.

Keywords: co-operation, pupils' research skills, research, co-operation oriented process of studies at school.

Introduction

Every epoch has specific demands. The present system of education is oriented towards obtaining of knowledge but not towards development of personality ready for work in changing society. The 21st century characterizes with fast changes in the life of society. With the changes of the aims of education, character of problems in education and the historical context also the understanding of the notion of education changes. The process of education and the aims become more complicated.

With the change of the education paradigm from teaching to learning on all levels of education the demands for education and the study process in total are changing. It is necessary to:

- form a link between new and previously acquired knowledge,
- necessity to strengthen unity of theory and practice,
- co-operation is important in the process of studies (Education in a New Era, 2000).

In education documents the necessity for personal development is especially stressed, the emphasis from acquisition of knowledge is moved to practical application. Today responsibility for own learning, activities and personal development increases. It requires a special approach and substantiation of the process of studies for solving of problems as well as for research in the sphere of education.

Lately learners' research work occupies more important place in the process of studies. In education new methodical solutions are searched for that could link theoretical knowledge with research.

Every year in spring scientific conferences – competitions of school, regional and national scale take place where learners' research work is analysed and evaluated. A learner is considered as a researcher who learns solving problems in actual situations. Learners' research work is necessary for acquisition of knowledge as well as skills for application of knowledge ensuring a possibility to develop lifelong (Bruce, Bishop, 2002).

Research is a kind of cognitive activities and a uniform part of the process of studies. Research is an activity that helps learners structure and integrate the acquired theoretical and practical knowledge.

Learners' research work is multiform, but the research skills should be trained at school as they will be needed for further studies at higher schools or in profession al work.

The article analyses a topical problem – learners' research work in the process of studies. The experience shows that teachers are interested in complementing their knowledge in methodological items in order to advise the learners' research work more successfully. Problems arise if the teachers need to help the learners in development of their research skills as not all of the teachers have understanding of research. Advising the learners' research the teachers themselves should be well informed on theoretical, methodological and practical advisory of research work. In pedagogical work of teachers new and important roles can be observed to organize more successful acquisition of knowledge. The teacher learns continuously from own work and experience, challenging theories and helps the learners acquire research work skills, and summarise them in a definite system (Johnson, 1989). It requires from the teacher additional knowledge, skills, competences and much time. As it is shown by practice and experience, a part of the teachers have definite difficulties in advising of research work.

The lecturers of the LLU support the school teachers sharing their knowledge and experience, latest information and application of research methods. The university has developed close co-operation with the Zemgale Region Competence Development Centre and schools to improve the quality of pupils' research. This co-operation ensures a possibility for all parties (university teacher, teacher, pupil) to use their experience for stating a common aim and learning from one another (Реан, Бовдовская, Розум, 2008).

The university lecturers organise lectures and individual consultations for school teachers on basic statements of research and definite suggestions for research work.

The aim of the article is conscious and substantiated necessity for co-operation of the university and schools in development of research work of pupils.

Research becomes a more topical problem in the study process at school as besides the traditional learning new trends are observed in organization of work, methods, co-operation of teachers and pupils (Koppenhaver, 2006; Žogla, 2001). At school attention is paid to research work that helps in development of creative skills, critical thinking, active attitude towards learning and understanding about ones place in life.

Methodology

The methodological base of the research is theoretical pedagogical statements on pupils' research work as a component of the process of studies (Bruce, Bishop, 2002; Čehlova, 2002; Далингер, 2000; Новиков, 2007; Schwartz, Lederman, 2008; Žogla 2001). To understand the essence of co-operation the theory of activity is applied in the process of cognition that substantiates the cognitive activity and its stimulating factors in pedagogics (Johnson, 1989; Stephenson, 1999; Yager, Kaya, Dogan, 2007; Леонтьев, 1990; Рубинштеин, 2000). The theory of pedagogical activity substantiates the complicated process of personal formation; learners' research skills as a kind of cognition (Harwood, 2004; Bruce, Bishop, 2002; Bell, Smetena, Binns, 2005; Эльконин, 2001).

The article analyses and summarises the data of the Zemgale Region Competence Development Centre on the results of research works of pupils. A comparative investigation is performed for three years (2010-2012) on the basis of 49 secondary schools. In the analysis of the pupils' research work descriptive statistics are used. To evaluate the structure of the pupils' research work the method of summarizing and systemizing of data on 439 papers is applied. Co-operation of the LLU with Zemgale region schools is substantiated. The obtained data are interpreted from the point of view of pedagogical theory and methodology.

Results and discussion

In theoretical and methodical sources explain the notion co-operation differently. In spite of these differences co-operation has common essential features that characterize co-operation between educational institutions – proportion of authorization and rights between the partners: clarification of

the opinions, mutual understanding, ability to maintain the position in co-operation, precisely stated and accepted aims (Stephenson, 1999).

Co-operation is one of the skills that are absolutely necessary for every person. People live in society, so they should get along and co-operate with other people. The relations formed in the process of co-operation essentially influence the life, feelings and working abilities of the teachers, pupils and parents.

Co-operation is impossible without co-operation objects and co-operation subject. The co-operation subject can be generally defined as development of teacher professional competence and pupils' research skills that unite the co-operation partners.

The aim of co-operation – what the partners wish to achieve in the result of co-operation – higher teacher competence and support in learners' research work.

The notion of pedagogical co-operation is related to the experience of development of democracy. It is co-operation, a free possibility to try different forms, methods and means of co-operation in the process of studies. Purposeful co-operation of teachers and learners in the process of education is implemented with mutual respect observing the accepted agreements towards the common aim (Рай, 2002).

Scientist A. Ļeontjevs considers that a base for any activity is the active nature of cognition. Activity arises from interests and relations of motives the formation of which promote activity. Creative activity is the main characteristic of cognitive activity. The meaning of activity changes with the change of motives. The personal meaning according to A. Leontev is the attitude of the motive towards its aim (Леонтьев, 1999).

The process of studies can be characterized as active co-operation between the teacher and learners in the result of which the learners forms definite knowledge on the base of his/her activity. The teacher creates conditions for the learner's activity – guides, directs, controls, offers information and gives the necessary methodical support that increase the learners interests in learning and research.

Z. Čehlova analyses development of activity from the reproductive to the productive levels and considers it to be the main trend in the pedagogical process. "Achieving the aim and developing the forms of cognitive activity the activity product is formed. The product includes the knowledge, practice as well as experience enriches. Activity finishes with the result that is seen as actual formations: activity, independence, stable cognition and social motives" (Čehlova, 2002, 17).

In co-operation pupils learn to work independently, use the acquired experience, experiment that is one of the prerequisites for the result of creative activity.

A. Špona characterizes co-operation as work of two or more people towards a common aim, coordinated means for achieving the aim. Co-operation is a form of sharing experience, a possibility to copy the best examples, development of self-experience with new knowledge and skills. In co-operation self-consciousness of both – teacher and learner – develops (Špona, 2001, 135-137).

According to E. Maslo the result of co-operation is mutual influence and understanding. Mutual influence manifests in changing views, values and self-evaluation, and in changes in the attitude and teaching/learning process. Mutual understanding is seen in joint opinions, motives and aims (Maslo, 2003).

Summarising the explanation of the notion co-operation according to different authors it can be concluded that interpretation of the notion differs, nevertheless, it includes:

- common aims of the related persons in the process of co-operation (Maslo, 2003; Рай, 2002; Špona, 2001),
- co-operation is sharing experience, active application of knowledge practically (Čehlova, 2002; Koppenhaver, 2006; Леонтьев, 1999; Slavin 1991),
- sense of responsibility and its distribution between the co-operation subjects (Брызгалова, 2004).

In scientific literature there is a discussion on research from two aspects- scientific research (Harwood, 2004; Yager, Kaya, Dogan, 2007) and learning research (Далингер, 2000, 2007).

Scientific research is active and creative activity of mind. Scientists apply different approaches to research. Learners are not scientists but in the process of studies they approach the purposeful activities of scientists and acquire the basic research skills (Schwartz, Lederman, 2008).

The aim of learning research is cognition. As I. Žogla mentions, scientific cognition is an expressed way of cognition, discovery of new relations, but learning cognition is a purposefully organized way of cognition that takes place with the help of the teacher and teaching materials – discovery of subjectively new knowledge for the pupil (Žogla, 2001; Čehlova, 2002).

Learning and scientific research have different aims – the aim of scientific research is to create objectively new knowledge, but in the result of learning research the learner obtains subjectively new knowledge for **him/her**. The common thing in these aims is to learn and understand new relations. Summarising it can be stated that the main characteristics of learning research are:

- stating of the cognitive problem and aim,
- independent research,
- direction of research towards acquisition of subjectively new knowledge,
- direction towards implementation of didactic, developing and educating aims.

The learners' research skill, according to today's paradigm, is discussed as a complicated skill consisting of three basic components – motivating, contextual, and operational (Брызгалова, 2004). The motivating component is the learner's wish to participate in research work. The contextual includes the amount of knowledge about research work and the skill to research. The operational includes the system of already existing skills and habits.

Skills are formed in multiform, repeated exercises and they can develop continuously. A skill is considered as an ability to do purposeful and fruitful activities according to the aims and conditions becoming a quality of a personality (Эльконин, 2001; Новиков, 2007). A skill is a complicated psychological formation including the kind of the activity and the system of knowledge of the person (Рубинштейн, 2000). A skill is ability to perform an activity in compliance with the necessary quality and amount; it is a prerequisite for activity. A skill is not automated activity, it is controlled by mind.

In the process of research the learners become active participants and guides of their study process. The teacher ensures indirect help to achieve the aim. Learning to co-operate teachers and learners supplement each other and direct the process of studies. Learning is a complicated notion and it cannot be defined unequivocally. Learning is an active cognitive activity, a category of didactics that describes a purposeful activity of the learners for enriching their experience.

The research has been performed based on the analysis of learners research work within three years. In the Zemgale region learner research work conference – competition 49 secondary schools with 439 learners' research works participated. The largest amount of papers was submitted from Jelgava Spīdola gymnasium (17), Jelgava State gymnasium (15) and Bauska State gymnasium (11). Distribution of the submitted papers in blocks (Figure 1).

The number of papers submitted in the block of Social sciences does not change essentially within the three years (22-24%). The interest of the learners in the courses of the block of Humanities has decreased (from 33 to 25%), but the number of reports has increased in the block of Natural sciences (from 45 to 51%). It can be explained by the fact that the teachers are included in international circulation – projects of professional development, exchange of experience to improve the quality of education stressing up-dating of natural sciences and engineering in the stage of secondary comprehensive education.

Within the three years from Zemgale region schools 212 papers are nominated for the scientific conference of Latvian pupils; 156 of them are invited to present their research at the conference, in turn, 66 papers are awarded in the scientific conference of Latvian pupils (according to years 26, 18 and 22).

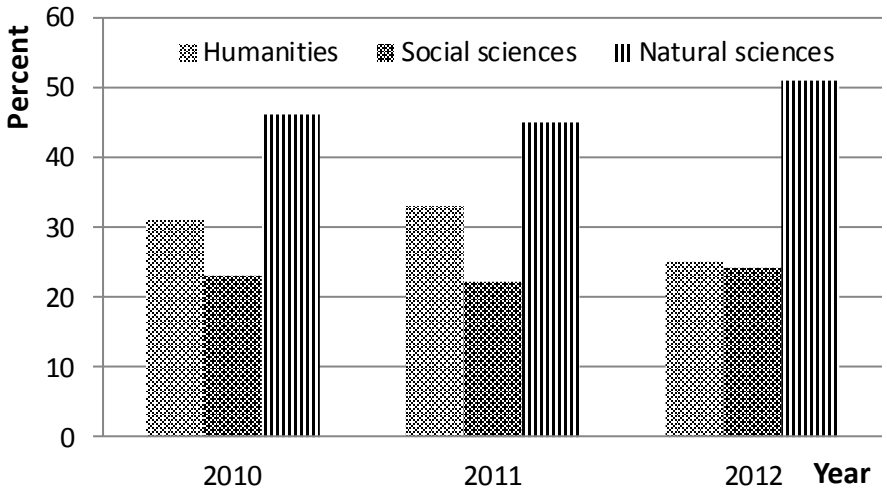

Figure 1. Distribution of the submitted research papers of learners for competitions in blocks.

The dynamics of the research papers shows that in the recent two years the number of research papers of learners nominated and for the scientific conference of Latvian pupils has decreased by 11% and also the number of the awarded papers has decreases percentually. It can be argued about the influence of teacher and learner co-operation and approach in advising the learners. Learning is discovery and it is important to distribute teacher help and learner independence to develop the learning skills optimally and prepare the research work on a high level. In S. Brizgalova's monograph the research skill is defined as a kind of implementation of research work (Брызгалова, 2004). The research skill can be related not only to scientific research, it can be discussed as a general learning skill (McMillan, 2004).

Analysing the number of papers submitted in Zemgale region and comparing them with the papers nominated for the scientific conference of Latvian pupils and the obtained awards an overview of three years can be seen (Figure 2).

Most papers are submitted in the sections of Biology, Physics and Economics (more than 30 in asection), but the least number of papers are in the sections of Philosophy, Law and Politology (3-9 papers in a section). The biggest number of papers nominated for the scientific conference of Latvian pupils are in the sections: Art (72.2%); Psychology, Law, IT (50% in each) and few papers in the section of Philosophy (3%).

The largest number of invitations to participate at the scientific conference of Latvian pupils from Zemgale region were received for the sections of IT, Pedagogics, Art and Law (60.0%, 47.6%, 44.4%, 40.0% correspondingly). The invitation was not received for the section of Philosophy. It can be explained by the fact that Philosophy is not taught at all schools.

At the national scale conference the papers in Pedagogics (42.9%), Art (33.3%), Chemistry (25.0%), Psychology (24.0%) and Physics received awards. The papers were not awarded in the section of IT although 60% of the papers were nominated. The quantitative number does not show the quality. In History, Politology and Economics nobody received the highest assessment – award. To make the learners' research works competitive in comparison to learners of other regions, the university lecturers suggested being advisers.

From Zemgale region winners of the first place the award was received by 36% of the learners, the second place winners in the region at the national conference received 41% awards, the third place winners received in the national conference 24% awards, Also the promoted learners at the national conference received awards, It can be concluded that Zemgale region learners – winners of the second place receive the biggest number of awards at the national conference (Figure 3).

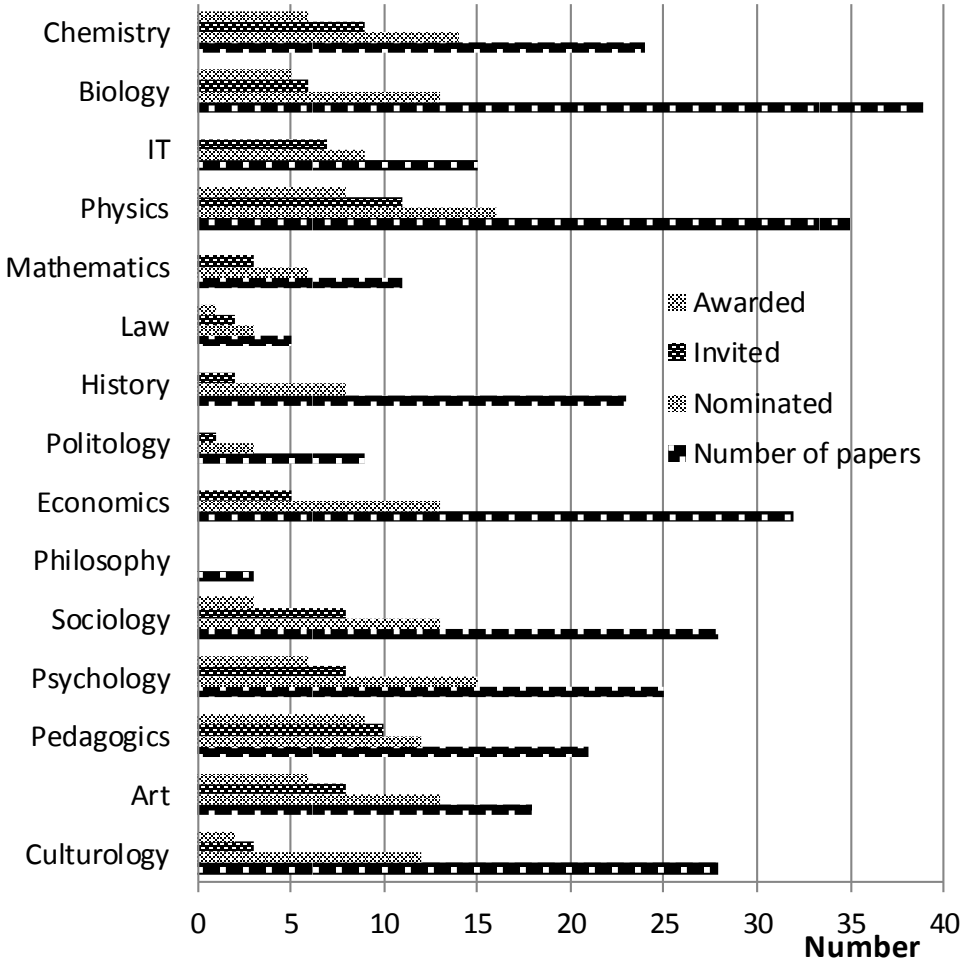

Figure 2. Summary of learner scientific work results in sections.

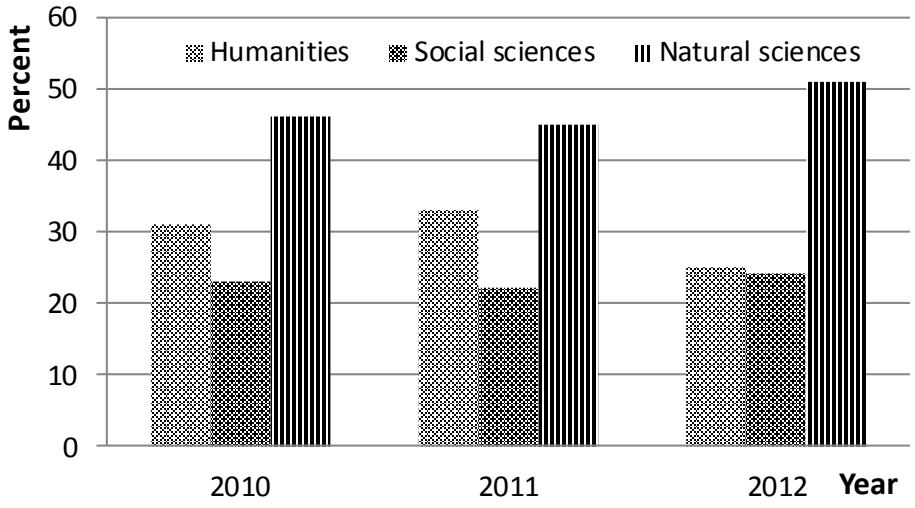

Figure 3. Distribution of learner award level at national level conferences in relation to regional evaluation.

The data of summarising research work show that to learn means to develop correlations between the already known and new knowledge, skills and it can be done by the learner himself through research work. Learning means development of the world outlook by means of acquisition of new knowledge. Learning is interaction between the process of learning and activities, individual experience, learning

environment and other conditions. Learning is discovery, it is important to balance the help of the teacher and independence of the learner to develop the learning skills optimally and make the process of learning qualitative (Figure 4).

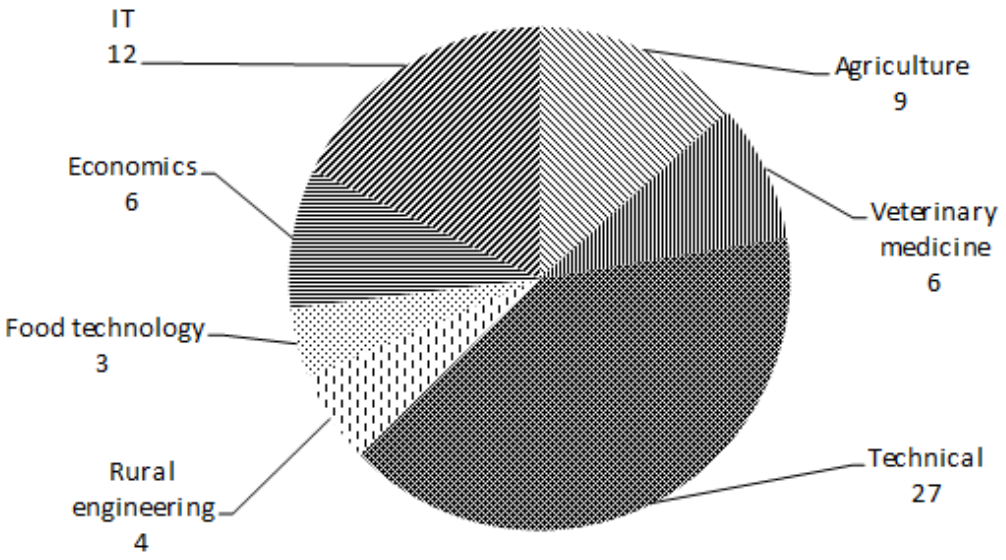

Figure 4. Possibilities for learners to study at the faculties of the LLU without competition.

The LLU provides the winners of Zemgale region learners' research work competition with certificates that give a possibility after finishing school to enter any of the university faculties without competition. The LLU has issued certificates to learners: in 2010 – 48, 2011 – 57, 2012 – 67. Receiving the certificate is a stimulus to involve in research work. Research work is based on the wish to get to know, to analyse, and work with information. Researching and discovering the learners have positive experience that acts as a motive for further learning and research. Positive emotions activate people, stimulate operation of the organism, add force, energy and positively influence intellectual abilities (Ильин, 2001).

Conclusions

Co-operation of Zemgale region schools with the Latvia University of Agriculture in developing research papers is characterized by clarifying the opinions of the partners, mutual understanding, ability to maintain the position in co-operation, precisely formulated and accepted aims in the result of which the partners wish to achieve higher teacher competence and support in pupils research work. Co-operation is a form of sharing experience, development of self-experience with new knowledge and skills.

The main characteristics of learning research are:

- stating of the cognitive problem and precise aim,
- independent research,
- direction of research towards acquisition of new knowledge,
- direction towards implementation of didactic, developing and educational aims.

The article analyses and summarises the data on pupils' research work in Zemgale region, and compares the obtained results with the awards at national conferences. At the national level conference the first level awards were obtained by 36% of the learners, second level – 41% and third level by 24% of the learners.

To advise the pupils' research work is an integral component of teachers' pedagogical work promoting co-operation, purposefulness and cognitive activity of the learners. Research work stresses development of the pupils' autonomy.

The lecturers of the Latvia University of Agriculture support the schoolteachers in development of their competence, research methodology that promotes a creative process of studies at school. Positive

experience in co-operation between university lecturers and school teachers and pupils in consulting research work has been substantiated. Achievements by the pupils are motives for continuing studies at the university.

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THE PEDAGOGY STUDENTS' PSYCHOLOGICAL READINESS FOR PROFESSIONAL ACTIVITIES

Regīna Baltušīte Dr.paed., Mg.philol.
Institute of Education and Home Economics, Latvia University of Agriculture, Latvia
rilagora@inbox.lv

Abstract: The author of the article has viewed at the dynamics of psychological readiness for professional activities from the observation and methodology practice to the practice of independent activities. The author of the article grounds her work on the assumption that the readiness for professional activities is formed of two components – psychological readiness and competence based readiness. The author has analyzed the pedagogy students' psychological readiness, the evaluation of which is based on the methodology for the self-evaluation of the readiness for professional activities; the methodology has been developed by the author of the article and comprises particular indicators characterizing a teacher's activities according to the environmental levels of a school. The methodological basis for the research is the ecological approach on which there is based the developed conception of pedagogical practice in the school environment. The results of experiment prove the development of psychological readiness during the pedagogical practice in the school environment.

Keywords: readiness for activities, psychological readiness for professional readiness, ecological approach, pedagogical practice.

Introduction

Nowadays the educational content becomes out-of-date and does not comply with the new educational paradigm anymore. At the same time the educational content cannot comprise all the nuances of mankind's development, including also the history of science and the discoveries known to mankind. Having evaluated the educational content (also the curriculum), we can draw a conclusion that education was falling behind the scientific achievements, but education is only a mediator, who develops the image of the society's thinking and activities (Ласло, 1995). Therefore it is important what would it choose for the content of its further development. This, in its turn, sets new requirements for the teachers, who will work at schools at least during the next thirty years. The keywords for this period of time could be – heart education (broadening of a personality's (also pedagogical) awareness, understanding of the unity of the world and its laws, understanding of own and a pupil's mission, creativity), lifelong learning (own and society's perfection, critical approach when working with information, formal and non-formal education), multicultural environment, leadership (a teacher as a leader, the teacher's active attitude towards life), mobility (Baltušīte, 2012). The former generation of teachers respond to the challenges of the time of changes (the largest group of teachers represent those of the age from 40 to 64) (Baltušīte, 2012); however, for a certain group of teachers it is difficult to accept the teacher's new roles (for example, a teacher as an advisor or, vice versa, to find the balance between the role of an advisor and the role of a relay of knowledge), to organize the work with pupils, who possess different abilities, using diverse teaching methods and information technologies. These issues within the study process are dealt with by the academic staff of all higher education institutions of Latvia. The members of academic staff of the Institute of Education and Home Economics of the Latvia University of Agriculture also consider how to ensure the professional development of competent teachers. One of the research directions of Institute is ecological approach in education. Ecological approach in the conception of pedagogical practice provides new opportunities for the education of prospective teachers, facilitating not only the changes in professional competence, thinking, but also in the lifestyle on the whole. The environment of a school is the environment for the pedagogy students' professional activities. The motivation to become a teacher depends on the fact how successful would be the pedagogical practice. Irrespective of the fact that theoretical knowledge and pedagogical practice form a single study process, it is the practice in the school environment, particularly the practice of independent activities, which determines the pedagogy student's readiness for professional activities. Alongside with the changes that take place in the society (also in education), the content of the concept a teacher's readiness for professional activities has considerably changed under the circumstances of current situation. Readiness is a

precondition for successful professional activities, as well as the result that is developed and improved within the process of a personality's self-development.

Methodology

In order to facilitate the pedagogy students' readiness for professional activities it was important, as a result of theoretical research, to substantiate scientifically ***a teacher's readiness for professional activities,*** as one of its components, viewing the psychological readiness.

The aim of research: To evaluate the development of pedagogy students' psychological readiness for professional activities in the school environment.

Research m ethods: Pedagogical experiment (establishing and developing); Information and data collection methods: reflection on experience; survey; pedagogical experiment.

The research was carried out from 2007 till 2010 and from 2008 till 2011, evaluating the development of pedagogy students' readiness for professional activities during the practice in the school environment. There were 34 students (18 students – at the first stage and 16 students – at the second stage) involved in the research; the involved students were studying in the study programme "Home Environment and Informatics/Visual Art in Education". The readiness for pedagogical activities was evaluated according to our developed indicators after each stage of practice (after the observation and methodology practice, assisting and technology practice, practice of independent activities).

Results and discussion

The society has always expected an ideal from a teacher – both regarding qualities of character, professional activities and the teacher's image. The school needs educators who: are aware of an educator's mission under the circumstances of modern changes; do their best to fulfil their educators' duties; are creative as concerns their pedagogical activities; set high standards not only towards others, but also towards themselves; respect their colleagues, pupils, pupils' parents and themselves in a modern school; feel the responsibility in front of the society for the new generation's desire and ability to find its place in the life, for their pupils' destiny in the future (Amonašvili, 2009; Katane, 2006). The following qualities of a teacher have been always important: love towards pupils, good sense of humour, righteousness, creativity etc. Each era introduce corrections in the significant teacher's qualities. In the 21st century more significant become the following: awareness of own emotions, evaluation of own activities (reflection), the skill to work in a team, independence.

Since there are two keywords (readiness and activities) in the conception *readiness for activities*, the development of its substantiation was commenced with the substantiation of the concept ***readiness***. In the scientific literature the concept *readiness* is defined differently. **There is no single viewpoint on the definition of this concept** in the psychology and pedagogy science. The diverse meaning of the concept is determined by different approaches in research. This problem has been studied by several scientists (Дьяченко, Кандыбович, 1986; Узнадзе, 1966). The basis for the research on the readiness for activities and readiness for professional activities could be found in the works of I. Pavlov on the conditioned reflexes and the research performed by D. Uznadze (Узнадзе,1966) on the disposition (Колосов, 2009). The concept of disposition was introduced by German psychologist L. Lange in 1888 (Колосов, 2009). The disposition is the psychological condition of a subject's inclination for a particular activity in a particular situation. Many authors relate the readiness for activities not only to the disposition, but also to the awareness of an objective, to the model of possible behaviour, the determination of the optimal type of activity, to the evaluation of own opportunities in comparison to the expected difficulty and the necessity to achieve particular result (Митина, 2002). The personality's readiness for activities is determined by the set requirements and aims of activities, the psychological processes and conditions, the gained experience and personality's qualities. As a result of theoretical research there was a conclusion drawn that, according to the aspect of different approaches and views, the concept *readiness* is defined as follows (Колосов, 2009) according to *the functional approach*, readiness is a particular functional condition, the psychological and social disposition of attitude that describes the personality's behaviour; b) *personality-oriented approach* enables to substantiate the readiness for activities as a totality of individually significant professional qualities that differ

according to their role regarding the regulating of professional activities; in this approach the integrating significance is attributed to those personality's qualities, which indicate progress towards a particular activity; c) within the framework of *the personality and activity-oriented complex approach* the readiness for activities is understood as a totality of an individual, a personality and a subject's peculiarities and a human being's qualities that ensures the possibility to perform functions efficiently.

The theoretical research proves that there are several explanations of the concept *readiness for activities* (Baltušīte, Katane, 2007; Katane, Baltušīte, 2007; Katane, Krugļija, 2009): readiness as a disposition (Дьяченко, Кандыбович, 1986; Узнадзе, 1966); readiness as a pre-start condition for the activities (Пуни, 1993); readiness as a mobilization for the activities (Гогунов, Мартьянов, 2000); readiness as a professional preparedness (Деркач, 2004; Иванова, 1983); readiness as a manifestation of abilities (Ананьев, 2001); readiness as a synthesis of a personality's qualities (Айсмонтас, 2005); readiness as a complex formation, the totality of a personality's parameters that develops as a result of the influence of educational (including professional education) and do-it-yourself experience (Хмель, 1998). Having evaluated the results of theoretical research, the author of the article drew a conclusion that ***readiness for activities is an integral formation, because it reflects the personality's entirety condition that comprises knowledge, skills and competences, different personality's qualities, for example, abilities that are necessary for a particular activity, as well as the personality's progress (also professional progress) that is formed by aims and motives, values and attitudes, needs, interests and desires.***

The conclusions of authors viewed prove that the scientists include into the substantiation of the component of psychological readiness, first of all, the substantiation of a personality's progress. The personality's progress determines the success of pedagogical activities. In the theories of psychology ***the personality's progress*** is characterized as a totality of qualities determining its psychological basis. Each of the conceptions reveal this characterization differently (Айсмонтас, 2005): dynamic tendency (Рубинштейн, 2004); sense developing motive (Леонтьев, 1982); basic progress of life (Ананьев, 2001); dynamic organization of an individual's significant strength (Прангишвили, 1978). Irrespective of the definition of a personality's progress in the conception, it is attributed the main role in the personality's structure. S. Rubinstein (Рубинштейн, 2004) viewed ***the personality's progress*** as the dynamic tendencies that, ***in a form of motives***, determine the individual's activities, but they are determined by its aims and objectives. The personality's progress comprises two interconnected aspects: the subject content (the content component) that means a particular subject of progress; the tension (personal dynamic tendency) that determines the source of progress. According to A. Leontev (Леонтьев, 1982), the personality's core is ***the totality of stable hierarchical motives*** as being the main promoters of activities. Some motives, by promoting the activities, ensure them with the individual sense and particular progress, but others are promoting factors. L. Bozhovich (Божович, 1997) and her collaborators defined ***the personality's progress as a stable dominating system of motives*** that determine the structure of a personality's wholeness. According to the scientists' point of view, a mature personality organizes his/her behaviour with the several motives functioning, chooses the aims of activities and by means of a specially organized motivation sphere regulates his/her behaviour so that the undesirable motives would be suppressed (Айсмонтас, 2005). The structure of progress consists of three groups of motives: the humane, personal and applied motives. Most of the psychology scientists ***view the personality's progress as***: the totality of phenomena (Талызина, 1998): the system of needs; (Dodonov; cited in Айсмонтас, 2005); the totality of tendencies, desires, interests, predispositions, ideals, (Platonov; cited in Айсмонтас, 2005); beliefs; the totality of motives (Немов, 1995). There is also another aspect in the personality's progress. The formations of motivation determine the progress of an individual's activities and behaviour that determines an individual's image in the social plan, because the personality's progress becomes the vector of behaviour (Айсмонтас, 2005).

In the humanistic psychology there is also emphasized the view that the personality's behaviour and activities are promoted, directed and regulated by a totality of hierarchical motives (Лешин, 2006). The motives could be an aim, values orientation (Karpova, 1994; Vidnere, 1999). Majority of authors find that motivation is based on needs (Ильин, 2000**).** Any external impact and influence facilitates the corresponding result only, if it meets the individual's needs. The sphere of motivation ensures

purposeful, consciousness character of an individual's activities and determines the personality's potential possibilities, manifesting as a stimulus for the personality's development on the whole. Due to this, there is actualized the problem of *the motivation of the readiness for activities.* For example, according to R. Sanzhayeva and R. Cvetkova (Цветкова, 2006, Санжаева, 1997; Санжаева, 2000), there is no action possible beyond the motive and meaning, there cannot be applied any, even the best acquired knowledge and perfectly developed skills. The action is a specific type of an individual's activity, which is oriented towards the creative transformation, the improvement of reality and oneself. It is related also to the studies at a higher education institution. D. Reeve (Reeve, 2001, 14) emphasizes the dynamic character of motivation. We should take into account that the direction and force of motivation are determined by the fact, which motive dominates in the totality of the personality's motives at a particular moment and how strong is it at that particular moment (Fig. 1). There is an interaction between the external influences and an individual's internal condition takes place in the motivation. A. Maslow (Maslow, 1987) believed that the human activities are based on the self-actualization need. By meeting this need, the personality becomes mentally healthy, independent, free and creative. However, in the real life most of the people do not raise up to this level. Even those, who achieve this level, cannot stay at the activity level that is ensured by the self-realization need, because this activity, instead of being a stable personality's condition, is a complicated process. Professor I. Zogla (Žogla, 2001) defines motivation as a totality of motives. The conscious reflection of future using the experience of past takes place in the motive. The developmental process of motive is not always a linear one, but it could be also cyclic, because the return to particular objectives takes place (Иванников, 1991). J. Iljin (Ильин, 2000) believes ***that the main components of motive – needs and aim – should be consciouss.***

We can agree to the conclusion drawn by J. Iljin (Ильин, 2000) on the inner essence of a motive, because the personality's particular motive is important. The changes in the content of the motive are determined by the personality's developmental level. Thus, any activity is determined by several motives (Божович, 1997; Ковалёв, 1988; Ильин, 2000). This totality of motives is the motivation for an activity. But the motives of activities could differ for one and the same person: some motives are more explicit, others – less explicit; some are stable, other – more related to a particular situation. There is no unmotivated activity (Леонтьев, 1982; Санжаева, 1997, 2000). In this case the subject either is not aware of the motive or hides it. However, J. Iljin (Ильин, 2000) points out that it is possible to speak about the true polymotivation only, if a person has set a distant aim, for example, learning, directed by a long-term motivation disposition. Learning is related to several separate activities, promoted by smaller motives that do not fall within a general progress. They are relatively independent psychological formations, facilitating the achievement of the goal. ***The force of the motive is mostly determined by emotions; therefore the motive may have also an affective character.*** The force of the motive is greater, if the motivation is internally organized. Speaking of a motive, the personality's attitude towards it is important. The awareness of motive does not mean its acceptance yet. The acceptance takes place, when the motive has a meaning and is related to the personality's opinion. The personality's activities depend on the motive, but the motive – on the personality's inner activity. In order to find out the meaning of the promotion, the personality needs to analyze it, i.e., to address the scale of own subjective values. The quality of motive depends on the personality's developmental level. According to their content, peculiarities and development, the motives are close to the personality's qualities and are included into the personality's progress. In its turn, the progress is oriented towards a particular aim due to which a motive emerges on the basis of a need (Божович, 1997; Ермилин, 1999; Ковалёв, 1988). The peculiarities of these motives determine the subject's attitude towards the activity and its aim. The development of inner learning motivation takes place as a progress from the external motive towards the aim of learning. Each step in this process manifests as the progress of one motive towards another one that possesses a greater inner meaning and that is closer to the aim of learning. The development of inner motivation is the personality's progress upwards. The transformation of motive into an aim depends not only on the influence of university lecturers and supervisors of practice, but also on the student's inner position and the objective situation of learning. Therefore the broadening of the student's vision of life and world is particularly important (Леонтьев, 1982). Setting of an aim is closely related to the personality's emotional sphere. The readiness to act in a particular way comprises not only disposition, but also evaluation, i.e. the

emotional component (Леонтьев, 1982) that creates the way to the meaning of activity. In the education of prospective teachers, particular significance is attributed to the attitude of the university lecturers, supervisors of practice (mentors) towards the teacher's profession, its significance in the society. The behaviour, that corresponds to the aim is possible only, if the external and internal factors are interrelated in the activity. This connection forms the psychological basis for the readiness for activities. The readiness for activities is a subject's qualitative new formation in the process of activities, already at the stage of setting an aim, when the connection between the objective (objectives, subject) and subjective (needs and aims) components of activities is developed. It is necessary to observe the diverse aspects of the structure of motivation, different motives, the components of which could be an aim, values orientation, personality's dispositions and needs. In the teachers' readiness for professional activities the main emphasis is placed on the professional knowledge, skills and personality's qualities.

Having analyzed concepts used by several scientists, the author of the article draws a conclusion that there is a diversity of concepts in the description of the teacher's psychological readiness for professional activities: the professional readiness of a specialist's psyche (Сластенин, 2004); readiness for perceiving of and dealing with pedagogical objectives (Кузьмина, 1990); psychological readiness for pedagogical activities (Иванова, 1983); socially psychological readiness for dealing with pedagogical objectives (Деркач, 2004). The basis for the teacher's professional progress is formed by the interest about a teacher's profession, the motives of professional activities, as well as the aims of professional development and career, a desire to acquire knowledge and skills useful for the profession, positive emotional attitude towards children, parents, pedagogical performance on the whole and its particular types. The pedagogical calling develops, when the theoretical and practical experience is acquired. The basis for the pedagogical calling is love towards people. It is the result of self-improvement, purposeful self-development of professionally important qualities that characterize the pedagogical progress. Thus, we can draw a conclusion that ***the majority of scientists identify motives as the core of personality's progress.***

Many authors name ***the psychological readiness*** as ***motivation readiness,*** emphasizing the role of determining motives for the progress of a personality (Крылов, 2005; Молодкин, 2006; Санжаева, 1997; Яковец, 1999). *Psychological readiness* is always based on a particular activity that develops and transforms, but the activity emerges and changes due to the motivation, and, as a result, their mutual interaction takes place. Thus, through the transformation of the activity, its gradual transition from one stage to another, the transformation of motivation also takes place, which proves the dynamic character of this phenomenon. The formation of such new attitudes is possible within the framework of a complicated psychological system, formed by a person acting, the person's actions and the situation within which the actions take place. Thanks to this fact, psychological readiness not only influences the process and regulation of activity, but also raises it to a new level, changes and develops itself, preserving and improving its wholeness that provides an opportunity to identify it as the psychological new formation of an activity (Крылов, 2005; Молодкин, 2006; Санжаева, 1997). Scientist E. Hachataryan (Хачатрян, 2011) identifies in the structure of psychological readiness: 1) the necessity for the professional improvement, and 2) reflexive attitude, on the base of which there is emotional attitude formed towards own professional activities. Both necessity and attitude become significant motives for the professional activities and improvement. I. Gorbatkina (Горбаткина, 2003) also points out that psychological readiness for professional activities has several structural elements: 1) values; 2) attitudes; 3) future plans and the aims of professional activities and improvement; 4) interests and professional positions transforming into the significant motive of professional activities on the whole that is the personality's (also the one of professional progress) basic content and the core of psychological readiness. L. Subbotina (Субботина, 2011) provides the structural substantiation of the readiness for professional activities of students as the prospective teachers, where she, within the framework of psychological readiness, the socially perceptive, values based motivation and emotionally sensor component, identifying motives as the basic content of psychological readiness. When developing the methodology for the self-evaluation of the readiness for professional activities of pedagogy students as the prospective teachers, the author of the article also viewed the motives as the determinants in the structure of psychological readiness. When evaluating the students' gain in the pedagogical practice, we viewed the readiness for professional activities from this aspect. The

academic experience, while performing the university mentor's responsibilities, organizing and supervising the students' pedagogical practice, proves that the positive motivation for the professional activities is closely related to the positive emotions during the practice. Scientist V. Vilunas (Вилюнас, 1990) also finds that emotions reflect the success of an activity from the aspect of a motive. It is important that the prospective educator would like to work as a teacher and would be motivated to acquire new competences and to improve the existing ones. This is proved by the experience of the author of the article, when after the first part of pedagogical practice she, together with the director of the programme, met with the pedagogy students in order to get the feedback, it was possible to observe that most of the students were motivated to work as teachers. Irrespective of the scientists' different approaches, it is possible to draw a conclusion that psychological readiness for professional activities is a complicated formation comprising several components. Psychological readiness for professional activities are developed during the professional studies and determine the effectiveness of prospective specialist's 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.*

Within the experiment there was applied the methodology for the self-evaluation of readiness for professional activities; the methodology was developed by the author and identified the changes in the psychological and competence based readiness for professional activities according to the levels of school environment, starting from observation and methodology practice to the practice of independent activities (Baltušīte, 2012). The obtained data are showed in Table 1.

Table 1

The Indicators of the Proportion of the Students of Experimental Group (Latvia University of Agriculture) according to the Levels of Readiness for Professional Activities (Psychological Readiness)

Level	The indicators of students' proportion before the experiment (%)	The indicators of students' proportion in the interim stage of experiment (%)	The indicators of students' proportion after the experiment (%)	Interpretation of the level
Level 7	0	27.7	61.1	Very high level of readiness
Level 6	62.5	66.7	33.3	High level of readiness
Level 5	37.5	5.6	5.6	Above the average level of readiness
Level 4	0	0	0	Average level of readiness

When processing data, we were interested in the fact, whether during the pedagogical experiment any changes have taken place regarding the self-evaluation of experimental group students' readiness for professional activities; besides we performed comparative analysis between the first stage of practice (observation practice) and the second stage of practice (assisting practice), between the second and third stage of practice (the practice of independent professional activities), and also between the first and final stage. Besides, the comparative analysis of data took place separately according to the components of readiness (psychological readiness and competence based readiness), as well as summing up the results of the evaluation of both components. For the purposes of data processing we applied SPSS 17.0, as well as data processing software online, using the test for determining of χ^2 criterion, as well as the Wilcoxon test for determining differences (Paura, Arhipova, 2002).

At the beginning of data processing, we determined the changes in the psychological readiness and competence based readiness for professional activities (Table 1).The indicators of the self-evaluation of students' motivation to perform certain educator's activities are rather high. For 37.5% of respondents already after the observation practice the motivation component of psychological readiness is at Level 5 (177 - 220 points) and for 62.5% - at Level 6 (221 – 264). After the practice of assisting it was possible to observe considerable increase of the number of respondents whose indicators of psychological readiness are at Level 7 (27.7%). There was a considerable decrease of the number of respondents whose psychological readiness for activities is at Level 5 (from 37.5% to 5.6%). There was an insignificant increase of the number of respondents whose psychological readiness for activities is at Level 6 (from 62.5% up to 66.7%). (Table 1).

But after the practice of independent activities there was the increase of the number of the indicators of Level 7 (from 27.7% up to 61.1%). Thus, 61.1% of respondents have high level of psychological readiness, 33.3% of respondents have high level of readiness, and 5.6% of respondents have above the average level of readiness. It shows the students' psychological readiness for performing pedagogical activities. It is possible to observe the dynamics in the development of psychological readiness; this dynamics is related to the enrichment of theoretical and practical experience. It should be emphasized that students in the experimental group were motivated for pedagogical activities, and those, who found work at school, continue to work, teaching their subjects and trying to perform the duties of the supervisors of practical training.

Conclusions

- As a result of theoretical research, in the scientific substantiations of readiness for professional activities, provided by various authors, there has been identified the tendency to emphasize two basic components: 1) psychological readiness and 2) competence based readiness.
- The performed research shows that psychological readiness for professional activities is characterised as an integral formation, ensuring successful performance of professional activities in a particular context, where the leading role have motives, developing positive attitude towards the chosen profession.
- The aspect of time and environment provides an opportunity to observe and evaluate the student's readiness for professional activities in its development on the basis of ecological approach (including the model of school multilevel environment and the stages and types of dyads as the systems of interaction) to the organization of practical training in the school environment that enables to organize practical training in several stages, gradually broadening the scope of student's functions and duties, as well as his responsibility for his professional activities, gradually becoming acquainted with and integrating into all levels of school environment (observation practice in the formal teaching-learning environment; assisting practice in the pedagogical environment; the practice of independent professional activities in the educational environment).
- The evaluation of data obtained as a result of experiment shows that there are significant changes in the psychological readiness and competence based readiness, as well as in the readiness for pedagogical activities on the whole. The results of the Wilcoxon test and Sign Test show the significant changes in the self-evaluation of indicators in comparison to the observation practice and the practice of independent activities.

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THE EPISTEMIC AUTHORITY AS STUDENTS DEVELOPMENT COORDINATE

Solveiga Blumberga[1] Dr. psych.; **Anita Lasmane**[2], Dr. psych.
Riga International School of and Business Administration Economics[1], Latvia
Riga Teacher Training and Educational Management Academy[2], Latvia
solveigablumberga@gmail.com[1], anita.lasmane@gmail.com[2]

Abstract: D.Bar-Tal', A.Raviv', S.Chiang' epistemic authority is becoming students professional development coordinate. Professor's epistemic authority is related with constructive social dominance and personality development encouraging social power. The aim of the Study is to explore the epistemic authority of professors perceived by students of various study areas: social, humanitarian and exact science. The methodology includes surveys: Epistemic authority questionnaire, Epistemic authority reliance reasons questionnaire *and Reasoning questionnaire.* Results showed, that following tendency can be observed: cognitive aspect has higher results, slightly lower – cognitive emotional that is, trust in knowledge. Professors epistemic authority differences exist between humanitarian, social and exact study area groups. Results showed that in all area student groups there was a tendency to recognize professor as an authority correspondingly to whether he has opinions that students accept, professor is an expert in his knowledge and experience area, professor is objective. Professors authority influence is more related with cognitive and cognitively emotional aspects as students development coordinate.

Keywords: epistemic authority, cognitive aspects, emotional aspects, perceived authority.

Introduction

In the contemporary knowledge society, epistemic – knowledge-related issues are becoming more significant in the work of any professional potentially perceived as an authority (Knorr-Cetina, 1997; Miettinen, Virkkunen, 2005; Jacobson, 2007; Glenn, LeBaron, 2011). Therefore, the concept of epistemic authority has become topical in the field of authority studies. Concept „epistemic authority" denotes a source of information having a dominating influence on acquisition of knowledge, and, for this reasons, an epistemic authority is also defined as an expert in a certain or general area of knowledge (Kruglanski, 1989; Kruglanski, Raviv, 2005). In the concept of epistemic authority, a source of information is understood as an individual and as any other source providing knowledge to an individual, e.g., study material to a student (Ordonez, Ponsoda, 2009). The personal strength of an individual is determined by his/her actual ability to promote other individuals' social activity, their development (Tarde, 1903/2003; Weber, 1947/1997; Asmuß, Svennevig, 2009). An educational institution may be perceived as a structure for embodiment and implementation of power in a society, and a professor's authority in the formal processes of education is believed to be one of the most essential personal development coordinates (Kruglanski, Higgins, 2004; Pounder, 2008; Chiang, 2009; Patchen, Crawford, 2011). The topicality of research into epistemic authority in the process of studies relates to the fact that there has been a historical transition from a general model of transmission of knowledge to interactive models where attention is paid also to the process instead of just the result (Landry, Amara, 2001; Lomas, 2000). For this reason, researchers bring forward the question of to what extent students' knowledge depends on the influences of professors' epistemic authority and how this promotes students' development (Asmuß, Svennevig, 2009; Guimond, 2001; Buchs, Falomir, 2002; Quiamzade, Mugny, 2003). Studies into epistemological views of students (Buehl, Alexander, 2005) reveal the specifics of academic areas: students may have views about knowledge in general, this influences their behaviour, but they may differ in academic areas. Epistemic authority in a person's life may change in various areas and stages of life (Erb, Kruglanski, 2003), it relates to age and sex (Raviv, Bar-Tal, 1990; Ramazanoglu, Holland, 2002; Lewis, 2007; Barton, Tan, 2008). To analyse student-perceived epistemic authority of university professors, the environment in which professors and students interact is also addressed (Han, Li, 2005; Bozalek, Matthews, 2009). An essential issue in the research of epistemic authority in a study environment is whether professors have different degrees of epistemic authority in various areas of science and academic disciplines, because various academic disciplines may have different degrees of prestige in the society. Therefore research is being conducted into whether a professor's epistemic authority is perceived in the certain areas in

accordance with the professor's competences, or it is general with regard to other knowledge areas. For example, statistics students perceived their professors in the certain knowledge area as epistemic authority to a higher degree than psychology students, whereas psychology students perceived their professors as epistemic authority in the general knowledge area (Raviv, Bar-Tal, 1993., Giorgi, 1985; Kimble, 1984, (Skemp, 1971). The psychology professor describes phenomena which are often not universal and are sometimes even contradictory (Raviv, Bar-Tal, 1993). Overall, the studies into student-perceived epistemic authority of professors proved that students perceive professors as experts in their individual knowledge areas, and their knowledge is the basis of their authority (Raviv Bar-Tal, 1993; French, Raven, 1968). Epistemic authority is becoming student's professional development coordinate (Bar- Tal, Raviv, 1991). The aim of the Study is to explore the epistemic authority of professors perceived by students of various study areas: social, humanitarian and exact science.

Materials and Methods

Epistemic authority research methodology approbated by the author was used in the study:

1. *Epistemic Authority Scale* **(**Raviv, Bar-Tal, 1993**).** *This survey was used to study the degree of student- and graduate-perceived epistemic authority of one associate professor chosen by them and the degree of four authority components:* 1) associate professor's knowledge; 2) trusting the knowledge of the associate professor; 3) student's readiness to change his/her opinion under influence of the associate professor; 4) student's readiness to change his/her behaviour under influence of the associate professor as a source of information;
2. *Reliance Question* (Raviv, Bar-Tal, 1993). *This survey was used to study the reasons for the reliance of the students and graduates on the epistemic authority of the same one associate professor.* 12 reasons (i.e., factors) explaining reliance are identified in the conception of epistemic authority: 1) expertness, 2) objectivity, 3) understanding, 4) subjectivity sympathy, 5) personal acquaintance, 6) similar thinking, 7) intuition, 8) transfer, 9) association, 10) friendship, 11) opinion, 12) characteristics.
3. *Reasoning Questionnaire* (Raviv, et al., 1993). This questionnaire was used to determine the degree of influence of the reason.

152 students participated in the survey: social sarea - 51, humanitarian area - 50, exact area – 51 students. The "convenient selection" method was used to form the study sample.

Results and discussion

Epistemic authority and reliance on epistemic authority assessment result variance between various groups of students in various study areas. The following differences were identified using the Mann-Whitney U test and the Kruskal-Wallis test to analyse the differences in the results: 1) differences between the results of assessment of student-perceived epistemic authority of the professor 2) differences in the results of assessment of reliance reasons; 3) difference in the results of assessment justification of reliance. In the study, the authors wanted to find out if there are differences between the assessments of professor's epistemic authority, reliance reasons and justifications of epistemic authority provided by students of the social area, the humanitarian and exact. Differences in the results of the assessment of student-perceived epistemic authority of professors. The comparison of professor's epistemic authority assessment revealed significant differences: 1) in components: „trusting the professor's knowledge" (Mann-Whitney U= 1710.50; p=.04) and „readiness to change behaviour" (Mann-Whitney U= 1688,00; p=.03) in the groups of humanitarian students; 2) in component „readiness to change opinion" in the groups of exact students (Mann-Whitney U= 1273.50; p=.02). A higher „Z" value was found for the results of the assessment of humanitarian students' readiness to change opinion.

In the study, within three study area student groups, a significant difference was observed in component „readiness to change behaviour" ($\chi 2$=11.46; p=.003), where the highest median range value (88.38) is for the results of the humanitarian students; the lowest (60.11) for the results of the exact students. A result variance tendency can be seen in the student sample for the assessment of the epistemic authority component „readiness to change opinion": a significant variance was found in the results of the humanitarian students for the assessment of epistemic authority component „readiness to

change behaviour". Differences in the results of assessment of reliance reasons. The comparison revealed significant result variances in the students' social area group result comparison. The results show significant differences for the assessments of the reliance reasons in the student sample: perceived professor's subjective compassion, i.e., professor's interest in student's well-being (Mann-Whitney U= 13697.00; p=.01); association „professor reminds a person the student trusts" (Mann-Whitney U= 13376.00; p=.007).

The comparison of the results obtained for the reliance reasons in the study area groups revealed a tendency that significant differences in reasons for reliance on professor's epistemic authority are determined by the higher ratings provided by the social area students and the lower ratings provided by the exact students (reliance reasons: professor's expertness (χ^2= 8.679; p=.01) – a higher median range (84.66) is for the results of the students of the social area; a lower (64.43) – for the results of the exact students; professor's interest in student's well-being (subjective compassion) (χ2=17.647; p=.00) – a higher median range (88.78) is for the students of the social area; a lower (56.14) – for the results of the exact students; professor's understanding of student's needs χ2= 7.415; p=.02) – a higher median range (87.23) is for the results of the students of the social area; a lower (64.30) – for the results of the exact students. Regarding the reliance reasons related to other significant (to the student) people's trust in the professor, significant differences in the assessment (χ2= 15.852; p=.00; χ2= 10.933; p=.004) are determined by the higher ratings provided by the humanitarian students and the lower ratings provided by the students of the exact area. In the study, significant differences have been observed in the ratings provided by the student sample for reliance reason „association" (Mann-Whitney U= 13120.00; p=.003). In the study, significant differences were observed only in one case**:** assessment of transfer (the professor influences the student's views, action because he/she has influenced someone the student trusts (χ2=7.092; p=.02), where the results of the humanitarian students have a higher median range (87.24) and the results of the exact students have a lower (64.53) median range. The results of the variance analysis performed within the study can be explained based on the results of the study conducted by A.Raviv and the colleagues (Raviv, Bar-Tal, 1993), conditionally relating the explanation of the results of the statistics students of their study to the explanation of the results of the exact students and the explanation of the results of the psychology students to the explanation of the results of the students of the social area. The results which showed that students' readiness to change opinion under the influence of the epistemic authority of the professor of the certain study course was the lowest in the group of students of the social area can be explained by the conclusion drawn by A.Raviv and others that psychology students perceived their professors as epistemic authorities in the general knowledge area, by providing lower ratings for their epistemic authority in the specific knowledge area (Raviv, Bar-Tal, 1993). The lower readiness of the students of the social area to change their opinion under the influence of the professor's epistemic authority can also be indirectly explained by the observation of A.Raviv and the others regarding a more subjective assessment, contradictoriness of psychology as a social science (Raviv, Bar-Tal, 1993). By relating this observation to the area of social sciences, the authors assume that the readiness of the students of the social area to change their opinions under the influence of the professor's epistemic authority can be lowered by the subjectivity of social sciences, contradictoriness of theories, and the fact that it is not possible to immediately verify and evaluate what the professor says. This explanation can also be related to the results of the comparison which showed the justification for reliance: professor's impartiality (objectiveness) and intuition – a feeling that the professor can be trusted – the lowest median range value in the group of students of the social area.

Reliance justification „perceived subjective compassion of the professor", i.e., the professor is interested in the student's well-being, can be explained by interaction between the students' personality and the requirements in the study area (Raviv, et al. 1993). This means that individuals opting to study the sciences need a structure, certainty, and clarity, and they might find professor's interest in well-being of the student less significant. This explanation can also be attributed to the result which showed the highest median range value for the results of the reliance justification „perceived subjective compassion of the professor" in the group of arts students. Based on the observations of A.Raviv and the others (Raviv, Bar-Tal, 1993), it can be assumed that students of the humanitarian might have lower requirements regarding the structure and, consequently, they find the professor's interest in the student's development more significant. The results of the variance analysis

can also be explained based on the interconnection between the students' social and demographic indicators and the analysis of student-perceived epistemic authority of professors, reliance reasons and justifications for reliance (reasons to support reliance). The age of the students also plays a role in the assessments provided for the authority component „professor's knowledge", assessments provided for the reliance reason „personal acquaintance", reliance justifications „personal acquaintance", „influence transfer", „similar thinking". An overall trend can be seen that younger students provide higher ratings for the professor's epistemic authority and reliance on the epistemic authority of the professor, and this has impacts on the differences between the results. Using the Mann-Whitney U test to determine the role of the gender factor, it was found out that, in the student sample, the gender has significant impacts ($p<.05$) on the assessment of professor's epistemic authority component „professor's knowledge". Higher ratings for professor's knowledge were provided by female respondents (median range –82.45), the median range of the results of the male respondents being 66.58.

Using the Kruskal-Wallis test to determine the role of the age, it was found out that, in the student sample, the age does not have significant impacts ($p>.05$) on the assessment of the epistemic authority and the reliance reasons. Using the Kruskal-Wallis test to determine the role of the study area in which the professor teaches, it was found out that, in the student sample, the study area has significant impacts ($p<.05$) on the assessments of the epistemic authority component „readiness to change behaviour". The results were higher for the assessments of the humanitarian study areas. The study area did not have significant impacts on the assessments provided for the reliance reasons and the justification ($p>.05$).

The Kruskal-Wallis test for the role of the study year showed higher results for the students of Year 1. The student's year of studies had significant impacts on the assessments provided for the reliance reasons: professor's interest in the student's well-being and development, the professor's understanding of the student's needs, transfer, friendship – the results were higher among the students of the 1st year. The student's year of studies had significant impacts on the assessments provided for reasons to support reliance: personal acquaintance, similar thinking of the student and the professor, trusting the professor, transfer, association, friendship. Like with the previously mentioned assessments provided for reliance reasons, higher results were found among Year 1 students.

Justification for such an opinion can be found in the studies into social comparisons and student's epistemic dependence on the professor which prove that the professor, whose competence is higher than the student's, threatens the student's self-esteem. In this situation, the comparison, which is unfavoured by the student, may provoke students into refusal from the assignment (Marsh, Hau, 2003), and this may, for the purposes of maintaining self-esteem, cause lower ratings for epistemic authority. However, an essential factor in the perception of the professor's epistemic authority is whether the professor publicly raises or lowers the self-competence of epistemically dependent students (Mugny, Chatard, 2006). It should be noted that students' epistemic dependence on the professor can be an essential condition for differences in student-perceived epistemic authority of professors, and, furthermore, the impacts of this condition may occur in two aspects: students with a high degree of epistemic dependence may perceive professors' epistemic authority as high or, to maintain self-competence, lower the significance of the professor's epistemic authority. This is also evidenced by research studies (Raviv, Bar-Tal, 1993; Mugny, Chatard, 2006; Quiamzade, Mugny, 2009).

Perception of professor's knowledge and trusting knowledge (a component of epistemic authority) may differ depending on whether students believe that knowledge comprises separate parts of information or see knowledge as interrelated concepts (Schommer-Aikins, 2004). In this situation, it may be essential how the professor provides knowledge: as separate (individual) parts of information or as interrelated concepts and how this relates to the views of students and their development. If there are discrepancies between views of students and professors with regard to these issues, one may anticipate that students perceive the professor's epistemic authority on a lower level. Differences in perception of the professor's epistemic authority may also influence the stability of students' views about the knowledge (this, in its turn, is an essential development coordinate). Some believe that, at large, knowledge does not change, whereas others perceive it as constantly changing (Schommer-

Aikins, 2004). Also in this case, perception of the professor's epistemic authority can be influenced by the match or mismatch of the views of the students and the professor, and, in case of a mismatch, the perception of the epistemic authority will lower.

Differences in the perception of professor's epistemic authority may be caused by students' critical or uncritical attitude towards the professor as a source of knowledge (Ricco, Rodriguez, 2006); differences in students' motivation for studies and, particularly, study achievements, and also how study achievements are linked with the role of the professor's epistemic authority (Muis, Bendixen, 2006). Although significant differences were identified during the study in the professor's epistemic authority as perceived by students of various study areas, the trend of the differences was noticeable. Consequently, the explanation of the results can be linked to the opinion that students' epistemic views with regard to knowledge and competence is influenced by the complexity of profiles, which is different in various study areas. Nevertheless, students have generally consistent epistemic views (Buehl, Alexander, 2005). It is possible that students' generally consistent epistemic views are a factor which determines the comparatively rare significant differences about the professor's epistemic authority among students of various study areas. Consequently, with reference also to the data obtained during the study, one may emphasise that epistemic authority is becoming student's professional development coordinate.

Conclusions

The comparison of professor's epistemic authority assessment revealed significant differences: in components: „trusting the professor's knowledge" and „readiness to change behaviour" in the groups of students of the humanitarian; in component „readiness to change opinion" in the groups of students of the exact. Overall, more significant differences in the student group results of the epistemic authority assessment were observed in the comparison of the results of the samples and the comparison of the results of the groups in the humanitarian area.

In the study, within three study area student groups, a significant difference was observed in component „readiness to change behaviour", where the highest median range value (88.38) is for the results of the humanitarian students; the lowest (60.11) for the results of the exact students. Overall, more significant differences in the student group results of the epistemic authority assessment were observed in the comparison of the results of the samples and the comparison of the results of the groups in the humanitarian area.

In student groups, the only significant difference ($p<.05$) is in the assessments provided for the „readiness to change behaviour" component of the professor's epistemic authority. The highest median range value was for the results of the students of the humanitarian area, whereas the lowest median range value was for the results of the students of the exact area. In general, one may note that no significant differences were identified in the student groups in the ratings provided for the „level of knowledge" component of the professor's epistemic authority.

Significant differences between the results of the comparison were identified in the comparison of the results of the social area groups of students. In the comparison of the results of the students if the social area, significant differences were identified in the ratings provided for the professor's expertness and the professor's interest in the student's well-being, development (subjective compassion).

In the comparison of the ratings provided by the study area groups for the reliance reasons, a tendency was identified that significant differences in the reasons for reliance on the professor's epistemic authority are determined by the higher rating provided by the students of the social area and the lower ratings provided by the students of the exact area. Thus, students of various study areas more frequently provide different ratings for the reasons which determine reliance on the epistemic authority of the professor.

In the ratings provided for the „association" reason to support reliance, significant differences were identified only in one case: in the assessment of transfer (the professor influences the student's views, action because he/she has influenced someone the student trusts ($\chi2=7.092$; $p=.02$), where the results

of the humanitarian students have a higher median range (87.24) and the results of the exact students have a lower (64.53) median range.

Students perceive their professors as epistemic authorities in the general knowledge area, with lower ratings being provided for their epistemic authority in the specific knowledge area The differences in the perception of the professor's epistemic authority can also be caused by students' views about the stability of knowledge (which, in its turn, is a significant development coordinate).

Although significant differences were identified during the study in the professor's epistemic authority as perceived by students of various study areas, the trend of the differences was noticeable. Consequently, the explanation of the results can be linked to the opinion that students' epistemic views with regard to knowledge and competence is influenced by the complexity of profiles, which is different in various study areas. The students' common epistemic views determine the comparatively rare significant differences between the views about professors' epistemic authority in the study area groups of students, and, consequently, it can be considered that epistemic authority is becoming student's professional development coordinate.

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INTERRELATION OF REFLEXIVITY, MINDFULNESS AND HARDINESS AMONG FIRST-SEMESTER STUDENTS

Jānis Pāvulēns[1] Mg.paed.; **Anita Vecgrāve**[2] Dr.psych.
Latvia University of Agriculture, Institute of Education and Home Economics, Latvia
pavulens@inbox.lv[1]; fromms@inbox.lv[2]

Abstract: Change of educational and living environment is the most significant change in the life of the first-semester students. There are negative tendencies found in several researches carried out in Latvia, Lithuania, the USA, Russia, they are related to well-being, mental and physical health of the first-semester students. The authors of the research continue their study of interrelation of hardiness and other psychological issues, which was started in 2012 within the selection of the first-semester students, assessing correlation of hardiness, mindfulness, and reflexivity. There were 64 first-semester students of Latvia University of Agriculture taking part in the research. Statistically significant positive correlation of the results of the mindfulness and commitment subscales was found in the research, as well as statistically significant negative correlation between the results of reflexivity and the hardiness scale was found. The obtained results confirm the statements of the theoretical studies on interrelation between mindfulness and psychological well-being, and reveal contradictions between reflection as an integral formation of the psyche and hardiness as a belief system involving active external activities.

Keywords: reflexivity, hardiness, mindfulness.

Introduction

There are similar tendencies of adaptation of first-semester students in Latvia, Lithuania and the USA (Voitkāne, Miezīte, 2001; Balaisis, 2002, Gallagher, Golin, 1992) expressed as difficulties to adapt to the environment of the university. There were serious problems of well-being, mental and physical health of the first-semester students found in the research carried out by S. Voitkane and S. Miezite in 2001 in the University of Latvia (Voitkāne, Miezīte, 2001). Similar tendencies are reflected also in the research of the adaptation of the students in Russia – 25% of the first-semester students feel emotional dezadaptation and high level of stress (Холмогорова, Гаранян, 2009). Impact of depression and social support towards overcoming difficulties was researched in Latvia University of Agriculture in 2011. Negative statistically significant ($p<0.01$) correlation between the results of received social support scale and Beck's Depression questionnaire was found in the research, showing the fact that as social support increases, the indicators of depression decrease (Pāvulēns, Vecgrāve, 2012).

V. Belkina and I. Reviakina state that the age of 16-18 years is a sensitive period for reflection development (Белкина, Ревякина, 2003). Young people of this age are still in the quest for their identity, they have to develop their new identity along with the studies, they have to acquire a new social role, and the basis of development of these phenomena is reflection. According to studies (Voitkāne, Miezīte, 2001), adaptation to the university environment, in its turn, causes stress. Overcoming stress is related to hardiness as an individual quality and individual flexibility resulting from it.

Researchers of the USA state that *increases in Mindfulness were significantly related to increases in self-esteem and declines in perceived stress, past and present anxiety, and general psychological symptoms* (Brown, West, 2011, 1030).

The results obtained by researchers evoke interest regarding interrelation between mindfulness and hardiness among the Latvian students, especially because the research methodology of mindfulness is compact and easy processed. There is no information at our disposal on previous researches of interrelation between mindfulness and hardiness, as well as on correlation between mindfulness and reflexivity, therefore, the results of the research may affect further researches within this field.

The aim of the article is to publish the results of the theoretical and empirical research carried out by the authors of the article on the mindfulness, hardiness and reflexivity among the first-semester students, as well as on interrelation between the mindfulness, hardiness, and reflexivity.

Methodology

The theoretical part of the research consists of the study and theoretical analysis of the scientific and methodological literature on the hardiness, reflexivity and mindfulness.

There were 49 (23%) female and 15 (77%) male first-semester students between ages of 18 to 23 (M=19.4, SD =1.15) participating in the empirical part of this study in October 2012, at the Institute of Education and Home Economics, at Latvia University of Agriculture. All the students were from the Faculty of Economics of the same University. Gender distribution was approximately proportionate to that within the student body of the Faculty of Economics of Latvia University of Agriculture, in which four fifths of the students were female and one fifth was male.

Research questions:

- How do the first semester students assess their mindfulness, hardiness and reflexivity?
- What is interrelation of mindfulness, hardiness and reflexivity among the first semester students?

Students were provided with a packet of questionnaires in their classes. The students were asked to fill out and return the questionnaires personally back to researchers. All students filled out the questionnaires in the classrooms.

A survey of the research developed by the authors consisted of the Mindful Attention Awareness Scale (14 items), the Hardiness Assessment Scale (an adapted version from the Personal Views Survey III-R (Maddi, Khoshaba, 2001)) (45 items), and the Reflexivity Assessment Scale (27 items).

The Mindful Attention Awareness Scale (MAAS), originally developed by K. Brown and R. Ryan (2003), consisted of 15 items; responses were made on a 6-point Likert type scale, ranging from 1 (almost always) to 6 (almost never). Higher scores reflected higher trait of mindfulness, reported internal consistency estimates (Cronbach's alpha) were from 0.80 to 0.87 (Brown, Ryan, 2003; Brown, West, 2011). The item "I go to places on *automatic pilot* and then wonder why I went there" because of its inappropriateness was removed from the survey, as in the research provided by K. Brown and A. West (2011).

The Hardiness Assessment Scale (an adapted version from the Personal Views Survey III-R (Maddi, Khoshaba, 2001; Леонтьев, Рассказова, 2006)) consisted of 3 subscales: Commitment (18 items); Control, (17 items); Challenge, (10 items). According to the Likert-type scale, the respondents had to choose one of the four possible answers: *yes*, *rather yes than no*, *rather no than yes* and *no*. As reported by the authors, the survey had acceptable validity and internal consistency, Cronbach's alpha (α) for hardiness was found to be 0.80 (for Commitment $\alpha = 0.59$, Control $\alpha = 0.63$, Challenge $\alpha = 0.57$). Similar estimates of internal consistency were found during our previous research (Pāvulēns, Vecgrāve, 2012).

The Reflexivity Scale developed by A. Karpov consisted of 27 items; responses were made on a 7-point Likert type scale, ranging from 1 (absolutely disagree) to 7 (absolutely agree). Reported internal consistency estimates were acceptable, $\alpha=0.76$, Spearman-Brown Coefficient was 0.78 (Карпов, 2003).

Results and Discussion

It was found in the theoretical part of the research that hardiness is a combination of attitudes allowing to overcome with courage and determination obstacles causing stress caused by possible potential feeling of disaster regarding growth opportunities. Hardiness is as significant stress overcoming factor as optimism and religiosity (Maddi, 2004, 2006). Hardiness as an ability to overcome difficulties develops during the childhood and youth. According to V. Bogin (Богин, 1993), it cannot be developed by using traditional types of activities, rather by considering and changing the level of

activity, by developing a new and adequate activity. Successful development of hardiness is possible only by using reflection. Hardiness as a force of counteraction is an integral quality of an individual including commitment. It is necessary to have self-determination, to determine one's intentions and possible results of activity in order to stay committed. Hardiness can be reflected in the attitude of an individual both towards himself or herself, and towards the world, it defines interaction between the individual and the surrounding world. Hardiness endues the person strength and motivates to express himself or herself, to be a leader by implementing a healthy way of thinking and behaviour. This phenomenon gives a possibility to have a feeling of significance and sufficient value in order to get fully involved in solving life's tasks, despite the stress causing factors. Individuals with developed hardiness are highly committed to whatever they are doing, they thrive for challenges, and view changes as an incentive to personal growth, rather than a threat to security, as well as they believe they have control over their lives.

Individuals having developed hardiness are unlike those described by several authors (Kobasa, Maddi, 1982). Such individuals are not able to overcome the difficulties of life due to their inability to be under stress and psychological protection. Poorly developed self-confidence, weak self-concept are characteristic to such individuals, therefore, they do not respond to life's challenges. Being fearful, having insufficiently developed processes of cognitive assessment, they perceive themselves as such who are not able to control the surrounding world. They prefer to quit when experiencing difficult situations or to humbly endure them, not trying to change the situation.

Hardiness has some considerable similarities with other psychological phenomena of personality. The following can be listed as the most significant similarities: control locus, harmonization of feelings, self-efficiency, optimism, as well as reflection, as it penetrates everywhere and embrace all areas of our psyche, as stated by A. Karpov (Карпов, 2003), however, a deeper study of reflection is hindered by the fact that to this day there is neither a single comprehensive psychological concept of reflection nor any somehow defined single approach for its development expressed in the ruling eclecticism and empiricism of the field. Reflection is both a unique *quality* possessed only by an individual and a *condition* of awareness of things, as well as a representation *process* of the mental content in psyche.

M. Desjarlais and P. Smith (2011, 3) state that unlike the self-assessment which is *a process that involves establishing strengths, improvements, and insights based on predetermined performance criteria, reflection is a personal process that can deepen one's understanding of self and can lead to significant discoveries or insights.*

A. Karpov states that reflection at the same time may express itself and also is being expressed as a mental condition, a process and a quality. Besides, the essence or specificity of reflection (as a term and mental reality) is expressed by the aspect that it may be considered separately not only as a process, a quality or a condition, but rather it is a direct synthesis, stating a qualitative definition of reflection. It means that although the study of reflection has to be carried out differentially in certain ways, the phenomenon itself has to be discovered as an undivided issue (as a single process, quality and condition). The researcher suggests avoiding fragmentary and fragmentation arising from using simply unrelated data on each of reflection categories, and he highlights the necessity to maximally emphasize their interconnectedness. A. Karpov points out that only by synthesizing the results obtained when studying each type of reflection, it is possible to develop a single comprehensive psychological concept of reflection (Карпов, 2003, 2005).

The study of reflection is related to study of reflexivity as a quality. Reflexivity is a quality possessed by each individual and is described by a limited range of the differences of individual expressions, it is a continuous quality which can be quantified. This insight allows to state that it is possible to develop a methodology to define the level of reflexivity. It means that the level of reflexivity as a new independent variable of the experimental studies of psychology may be used to define new functional connections and to discover causal relationship. A. Karpov (Карпов, 2003) states that it is possible to define regularities between reflexivity and the results of one's activity, to find and to assess correlations of reflexivity and of other individual qualities, as well as to determine a place of reflection within the structure of personality.

Describing a research methodology of reflection, the scientist emphasizes inseparable unity of the process, condition and quality when understanding reflection, and reflection as a united intrapsychic and interpsychic phenomenon, the former features reflection as an ability to perceive and analyze the content of one's psyche, the latest – the ability to understand psyche of other people, "to put oneself in somebody's shoes" (Карпов, 2003).

The researcher points out that the spectrum of behavioural expressions – reflexivity indicators includes three types of reflection: situational, retrospective and perspective reflection (Карпов, 2003, 2005).

- *Situational* reflection is featured by direct adapting to the situation by reflecting subject, self-control of behaviour in the existing (urgent) situation, comprehension of its elements and analysis of the ongoing events. Reflection includes the ability of the subject to relate his or her activities to the itemized world, to control and to coordinate elements of his or her activity according to changeable circumstances. Indicators of behaviour – time for considering the ongoing activity, frequency of the stages of analysis of the ongoing activity, the breadth (expanse) stage of the decision making process, tendency of self-analysis in certain situations of life.
- *Retrospective* (past) reflection is used to analyse implemented activity and events which occurred in the past, it is expressed in one's inclination to analyse and assess his or her past. Objects of reflection are prerequisites of the things in the past, motives and reasons, the content of implemented behaviour, its results, and especially – made mistakes. Retrospective reflection is featured by the fact how often and how long an individual analyses and assess the events of the past, or whether he or she have an inclination to analyse the past and himself or herself within it.
- *Perspective* (future) reflection includes thoughts on behaviour or activity to be implemented in the future, sense on its process, planning, and the most effective selection of its implementing methods and prediction of possible results. Indicators of behaviour include the stage of how carefully one's behaviour is planned, frequency of thoughts of future events, orientation to future.

According to K. Brown and R. Ryan (2003, 822), mindfulness most commonly is defined as the state of being attentive to and aware of what is taking place in the present, described as the clear and single-minded awareness of what actually happens to us and in us at the successive moments of perception, or characterised as keeping one's consciousness alive to the present reality. There were statistically significant ($p<0.001$) positive correlations of mindfulness found in relation with several indicators of psychological well-being - life satisfaction, vitality, autonomy, relatedness, competence - in several researches carried out among the students (the total amount of the samples N=1179), as well as statistically significant ($p<0.001$) negative correlations were found in relation with the scales of NEO personality inventory neuroticism, anxiety, angry hostility, depression, self-consciousness, impulsiveness and vulnerability and the NEO Five-Factor Inventory Neuroticism scale, as well as with several personal survey methodology scales of Depression and Anxiety. Statistically significant ($p<0.01$) negative interrelation between the assessment of mindfulness and physical well-being also was found within the individual subgroups of the selection (including the group of students, N=640, mean age 19.5) (Brown, Ryan, 2003). Similar results were obtained when studying adolescents (N=602, mean age 16.73) (Brown, West, 2011). As for adolescents (N=102, mean age 15.35) with mental health disorders, statistically significant changes of mindfulness were found, when their condition improved.

Analysing compliance of the results obtained in the research with the normal distribution using the One-Sample Kolmogorov-Smirnov Test, it was found in the empirical part of this study that all calculated $Z<1.123$, all calculated $p>0.16$, showing that distribution of the results complies with the normal distribution (Paura, Arhipova, 2002).

Using Mann-Whitney U criteria for comparing, according to responses of male (n=15) and female (n=49) first-semester students, it was found that there were no significant differences (all calculated $p>0.05$) in the assessments of Mindful Attention Awareness, Commitment, Challenge and Reflexivity among subgroups. Statistically significant differences were found within the Control subscale, the mean values of the control assessment of the male students were higher than those of female students.

Statistically significant differences (p<0.10) were found when comparing the total assessment of hardiness (Mann-Whitney U=246; p=0.054). The mean values of the hardiness assessment of the male students were higher than those of female students in this assessment, too (Table 1).

Table 1

Minimal and Maximal Scores, Central Tendency Indicators and Significance of the Differences in the Results in Female and Male Samples

Scales	**Sample**	**M** (*Mean)*	**SD** (*Standard Deviation*)	**Min**	**Max**	Mann-Whitney **U**	***p-value***
Mindful Attention Awareness	F	3.96	0.58	2.50	5.73	358	0.881
	M	3.95	0.48	3.14	4.57		
Hardiness, commitment subscale	F	26.12	5.69	14	36	293	0.236
	M	28.13	4.81	16	35		
Hardiness, control subscale	F	20.53	5.26	8	30	183.5	0.003
	M	25.01	5.58	19	29		
Hardiness, challenge subscale	F	10.57	3.32	3	17	357	0.867
	M	10.93	2.41	7	15		
Hardiness, total	F	78.09	16.69	41	109	246	0.054
	M	87.36	12.78	61	104		
Reflexivity	F	132.32	19.74	84	175	280.5	0.168
	M	124.99	19.54	87	160		
Samples: F – female, n=49; M – male, n=15							

Table 2

Reliability Indicators and Correlation Coefficients

No	**Scales**	α	**Scales**				
			1	**2**	**3**	**4**	**5**
			Spearman's rho (r_s)				
1	Mindful Attention Awareness	0.78	1.00				
2	Hardiness, commitment subscale	0.75	0.31 [b]	1.00			
3	Hardiness, control subscale	0.69	0.18	0.58 [a]	1.00		
4	Hardiness, challenge subscale	0.56	0,03	0.52 [a]	0.39 [a]	1.00	
5	Hardiness, total	0.83	0,24 [c]	0,86 [a]	0,83 [a]	0.67 [a]	1.00
6	Reflexivity	0.79	-0.14	-0.17	-0,37 [a]	-0.29 [b]	-0.33 [a]

α – Cronbach's alpha Significance (2-tailed):
[a] – Correlation is significant at the 0.01 level (p< 0.01)
[b] – Correlation is significant at the 0.05 level (p <0.05)
[c] – Correlation is significant at the 0.10 level (p <0.10)

It is found that there is statistically significant positive correlation between the results of the MAAS and commitment subscales ($p<0.05$). Self-assessments of reflexivity are negatively statistically significantly related to the results of the Hardiness Control subscale ($p<0.01$) and to the Challenge subscale ($p<0.05$). Assessments of reflexivity and hardiness are also negatively statistically significantly interrelated ($p<0.01$) (Table 2).

Table 3

Comparison of Self-Assessment of Mindfulness among Various Selections

Mindful Attention Awareness Scale (MAAS) item	MAAS Results					
	Sample 1		Sample 2		Sample 3	
	M	SD	M	SD	M	SD
I could be experiencing some emotion and not be conscious of it until some time later	4.0	1.12	4.0	1.2	4.0	0.89
I break or spill things because of carelessness, not paying attention, or thinking of something else	4.1	1.47	4.3	1.4	4.4	1.09
I find it difficult to stay focused on what's happening in the present	3.8	1.23	3.9	1.3	3.9	1.12
I tend to walk quickly to get where I'm going without paying attention to what I experience along the way	3.4	1.27	3.4	1.4	3.6	1.1
I tend not to notice feelings of physical tension or discomfort until they really grab my attention	3.8	1.22	3.8	1.3	3.3	1.14
I forget a person's name almost as soon as I've been told it for the first time	3.4	1.54	3.9	1.7	3.6	1.5
It seems I am "running on automatic," without much awareness of what I'm doing	3.7	1.24	4.0	1.3	4.0	0.99
I rush through activities without being really attentive to them	3.8	1.11	3.9	1.2	4.3	1.02
I get so focused on the goal I want to achieve that lose touch with what I'm doing right now to get there	3.7	1.15	3.7	1.3	4.2	0.99
I do jobs or tasks automatically, without being aware of what I'm doing	3.7	1.2	3.8	1.2	4.5	1.07
I find myself listening to someone with one ear, doing something else at the same time	3.5	1.16	3.0	1.2	3.5	1.08
I find myself preoccupied with the future or the past	2.7	1.03	3.1	1.4	2.9	1.11
I find myself doing things without paying attention	3.7	1.14	3.6	1.2	4.3	0.96
I snack without being aware that I'm eating	4.1	1.42	4.2	1.6	4.8	1.16
Sample 1 – N=313, mean age 19.5, average MAAS score is 3.67 (Brown, Ryan,2003, 826) Sample 2 – N=294, mean age 16.7 average MAAS score is 3.75 (Brown, West, 2011, 1028) Sample 3 – N=64, mean age 19.4, average MAAS score is 3.96 (data from the current research)						

Comparing obtained results with those of other researches, we found that the assessments of respondents' mindfulness were slightly higher than those of other researches (Table 3). Presumably, it can be explained by the adaptation period to the environment of studies. It was found in the adolescent mindfulness research carried out in the USA (n = 602, mean age 16.73) that *survey scores are slightly higher for male adolescents (M=3.93, SD = 0.74) than for female adolescents (M=3.72, SD = 0.75),*

as well as the *MAAS scores did not differ by age (r = 0.05, p >27) nor by race or ethnicity* (Brown, West, 2011, 1028). The mean values of the male assessments of our research are slightly lower than those of female, however, differences are not statistically significant. Comparing responses of the respondents among the different age groups with the Kruskal Wallis Test, it was found that differences were not statistically significant (χ^2=5.24; p=0.28), age differences of the respondents were not statistically significantly related to mindfulness (Spearman's rho r_s = 0.20, p = 0.12).

Conclusions

- It was found in the research that mindfulness (M=3.96) of the first semester students was slightly higher than that of the previous studies (from 3.67 to 3.93), differences among the gender and age subgroups were not statistically significant.
- Differences of the entire hardiness assessment among the male and female subgroups of the first semester students are statistically significant (p<0.1), male respondents assess their total hardiness higher than female respondents. Significant differences (p<0.01) are found in the control subscale proving that readiness of the first semester male students to look for solutions under stress situations is higher.
- As for assessment of reflexivity of the first semester students, good mutual compliance of the assessments of male and female respondents was found, as well as compliance of the assessments with requirements of normal distribution (Kolmogorov – Smirnov Z=0.72, p=0.69) was found, thus, proving proportional distribution of reflexivity assessments in the sample.
- The assessment of mutual interrelation of the respondents confirms statistically significant interrelation of mindfulness and hardiness. Correlation between the statistically significant mindfulness and commitment subscale (r_s= 0.31, p< 0.01) confirms the insight obtained in the theoretical part of the research on interrelation between mindfulness and well-being; it confirms mutual interrelation between the attitude of alertness and thoughtfulness towards the life and conviction of the necessity to participate actively, to be a part of the on-going things.
- In opposition to the external, active life's position performed within the social environment, reflexivity as an integrative inner activity is related to restriction of external activities within a certain period of time which is reflected in negative statistically significant interrelation with reflexivity and hardiness in general (p<0.01), as well as with the subscales of control (p<0.1) and commitment (p<0.05).

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SIGNIFICANCE OF TOYS IN SOCIALISATION PROCESS OF PRE-SCHOOL CHILD

Dagnija Vigule Mg.paed.
Riga Teacher Training and Educational Management Academy, Latvia
dagnijavigule@inbox.lv

Abstract: Main and most significant activity of child during his/her childhood is playing. Play, being complicated phenomena of childhood, both historically and philosophically is related with a toy. Toy in the meantime is product, piece of work having particular functions and forms created by an artist, as well as it is an initiate of child activities and symbol of specific society and insights accepted within this society, symbol embodying values, organising experience and regulating behaviours and actions. Aim of the study is theoretical and practical investigation of modern toy significance in socialisation process of a pre-school child. Analysis of children interviews was based on descriptive, classification and mathematically statistical methods. Person becomes what he/she is by acting in social environment and material world. When playing with a toy, child's understanding of good and bad is formed, and as a result certain behavioural model and value system development takes place. It indicates that, when purchasing toy for a child, adult should make sure that it not only satisfies the desires of child as a consumer, but also furthers human activities and helps child to develop own individuality and abilities.

Keywords: toy, social norms, conduct and behavioural skills

Introduction

During childhood, when onsets of strong personality occur, also intensive socialisation of a child takes place. This is the most suitable time for certain norms, which are closely related to aim of the upbringing, to become a part of person's life, part of us. During this period a particular virtuous attitude of a child is developing, and later this attitude evolves into a natural tendency to act morally right. Significant role in this process is taken by the play that is closely related to toy. Game (play) or playing is natural process for human beings and takes place by itself. Specific character of a game is captivation of the player.

Not always participation of someone else is necessary for the game to take place, while always there is a necessity for someone "who answers to the players move with a reply" (Gadamers, 1999, 110). Toy is an object ensuring movement back and forth that is the base of a game (play). When playing, child assigns tasks for himself/herself, and these missions become the tasks of the play, whereas aim of the play is not to solve or accomplish them, but establishment and maintenance of the "movement back and forth". Toy (object), which establishes and maintains the "movement back and forth", allows player to set and complete own tasks and "to enjoy freedom of making own choices" (Gadamers, 1999, 111). It becomes initiator of child's actions and own activities and helps child to realize his/her physical and thus also mental 'I' or ego.

Toy is an object designed for playing, which is envisaged for harmonic and many-sided development. It, similarly as a play, has originated during a certain time period, it is not created by one person, but by whole society. Toy helps transferring cultural values and achievements of civilisation from one generation to another; child starts playing at the peak reached by the humanity (Rodari, 1997, 93). As a part of the cultural environment, toy, which falls into the hands of a child, has several functions. Its appearance and functions allows judging about century, nation, it's aesthetic values, about the way, how people perceive world, socialisation, psychology (Абраменкова, 2008, 142 – 153) and in the meantime toy reveals society's attitude towards child. Aim of the research is theoretical and practical study of the significance of modern toy in socialisation process of a pre-school child.

Methodology

With an aim to study, which of the cartoon characters largely forming child's understanding of good and bad, influencing formation of particular behavioural model, facilitating one or another action or

activity, an interview adapted to the E.Smirnova and E.Medvedeva research was conducted (Смирнова, Медведева, 2004). The investigation engaged children aged 5-6 (124 girls and 129 boys) from various pre-school education institutions of Latvia. During the interview, children were asked to:

- name cartoon character, which they would like to have as a toy, and explain, why he/she likes the chosen character and which of the character's features pre-schooler likes;
- name cartoon character, which they would not like to have as a toy, and explain, why he/she does not like the chosen character.

These questions consist of two parts. Child names both preferred and unwanted character and explains the choice. Aim of the question was development of the list of desirable and undesirable toys, as well as it aimed at finding the cartoon characters behaviour of which seems acceptable or unacceptable to children.

By tracing the experience of pedagogues, a survey was conducted. Totally survey engaged 228 pre-school teachers from various pre-school education institutions in Latvia. When answering to the question – what do you think about modern toys – pedagogues gave their opinion on toys that have become a significant part of the child's life.

Interviews and survey results were analysed by frequency and interpretation with the help of descriptive and analytical statistics method (IBM SPSS Statistika-v19.0). Further study of the question took place by analysing theoretical literature that resulted in theoretical recognitions.

Results and discussion

Analysis of the children answers to both answers showed that for them it is easier to name and explain why they want the particular cartoon character. When answering to the first question – which of the cartoon characters you would like to have as a toy? – only one boy did not name specific toy and explained that *there is no character I would like to have* (boy aged 5.6). Other surveyed children named characters they would like to have (totally 108 various characters) and explained why. Whereas, when answering to the question – which of the cartoon characters you would not like to have as a toy? – 9.61% of girls and 1.90% of boys said: *I don't know, there is no character I would not like to have, I want all, and all are cool.* Totally children named 94 various cartoon characters.

Children answers cover a list of different cartoon characters that is dominated by heroes from various animations and TV series. None of the children mentioned character from cartoon created in Latvia, nevertheless in various cultures socialisation aims differ. Moreover experience to next generations is transmitted trough "modelling instead of verbal explanations" (Fišers, 2005, 158).

Characters as Winnie the Pooh, Shrek, Carlson, bunny from "Nu, pogodi," Tom&Jeri are favourite among both boys and girls. Although mainly children are choosing toys that suit their gender. Girls are wishing to have princesses– Fiona, Ariel, Jasmine, Cinderella, Pippi Longstocking, while boys want various super heroes – Superman, Spiderman, Ninja turtles, or Transformer, whereas the character chosen the most often is the *Lightning McQueen.* 2.42 % of girls and 0.78 % of boys say that they want it, because it is for particular gender.

Analysis of the children interviews indicate differences not only in characters they have chosen, but also in their characterisations. By studying each answer separately and all answers together with the help of content analysis and coding of answers, the most significant issue of the children ideas and perceptions, when charactering chosen cartoon character, was sought.

Answers received from children allowed distinguishing five answer groups, which were coded with simple codes. The first group included features like *evil, lazy, sly*, the second group is formed by good characteristics – *good, kind-hearted, helpful, cheerful, playful*. The third group merged features characterising appearance – *beautiful, beautiful hair*. The fourth group is formed by features characterising power – *brave, heroic, rowdy*. Whereas the fifth group merged the answers not naming specific characteristics, only activities or actions of the character – *flying, jumping, swimming* (Table 1).

Table 1

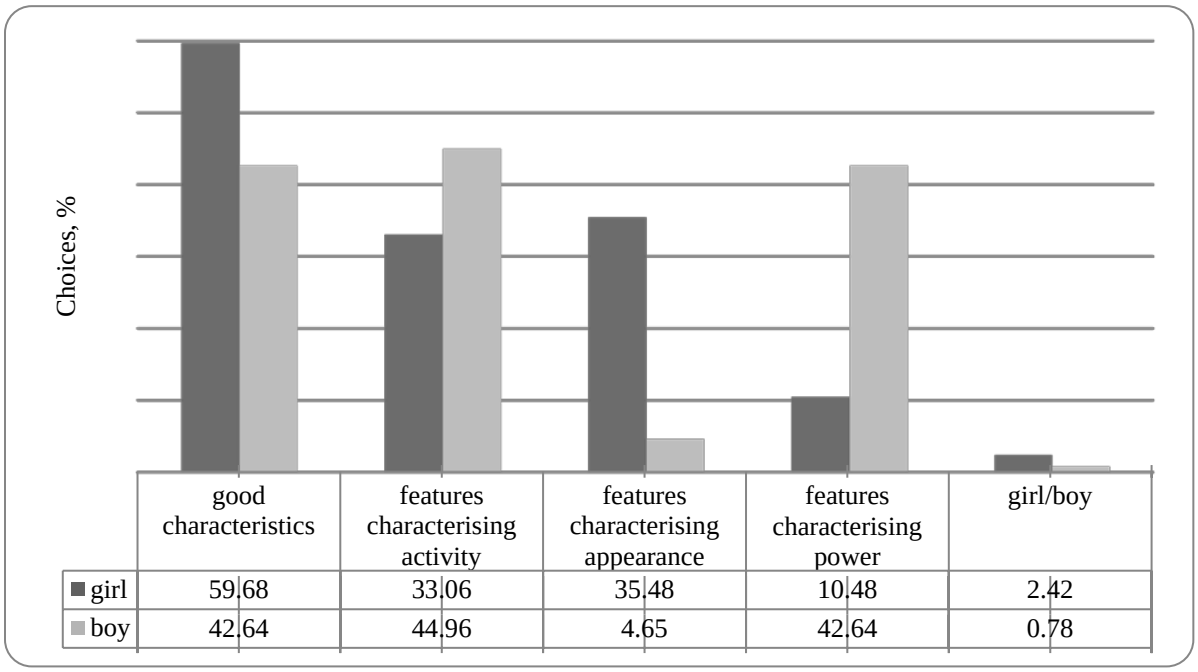
Characterisation of cartoon characters named by children

Answer codes	Children answers for illustration of codes	
	Good	**Bad**
Good characteristics	*they are bad, because did not want to take her to the ball; does bad things to other; lazy; sly; he is lying, steeling, doing iniquities, fearing other; may eat people;*	
Bad characteristics		*she is good because washes floor, do dishes, laundry, studies the book together with gnomes; kind-hearted, helpful, cheerful;playful; hard-working; clever;*
Features characterising appearance	*beautiful; beautiful, long hair; he is pink and pink suits girls; he is green and big;*	*ugly; fat; I don't like her clothes; not beautiful;*
Features characterising power	*strong and cheesy; brave; heroic; strong; he has powers; cools; fighting; he helps to fight; defeats evil ones;*	*bad; bullies other;*
Activity instead of characteristics is named	*can crawl on walls and jump on buildings; flies like a dragon and birds; can fly in trough the window; protects people; jumps high; disobedient; fast and talkative; he is looking for adventures and he has a lot of friends; can transform;*	*he is slow and can't catch bad ones; only feet are moving, not interesting;*

Answers to the question – Why do you like the character and which of his/her characteristics do you like? – show that 74 girls (59.68 %) and 55 boys (42.64 %) find it significant that character has some of the good characteristics (*friendly, good-hearted, cheerful, happy, clever*). Answers given by children to describe the character largely meet the general idea on what good, successful person should be – *kind-hearted, helpful, hard-working, clever* (Fig. 1). Nevertheless the current trends are aiming at self-development, emphasizing the idea on self-realisation in society with the help of independent thinking and ability to judge. Critical view is given to emphasis of values like diligence, assiduity and readiness to obey (Gudjons, 1998, 211).

Research shows that child chooses the most suitable or wished character basing on its appearance and activities (interesting, attractive). Appearance of the toy is important for 44 girls and 6 boys, whereas features characterising activity are significant for 58 boys and 41 girl. Features describing power and aggressive behaviour are attractive to 55 boys and 13 girls. Phrases used to characterise these cartoon characters were: *he has powers, he is cool,* showing that mentioned character is especially interesting, captivates and attracts the child emotionally.

Significant education and upbringing tasks can be implemented through playing with a toy as an integral part of the childhood. During the play child shows his/her personality, inclinations, desires, ethos, as play is activity motivated internally, and that is closely related to interests determining content, form and length of the game. Story of the play, choice of toy show the nature, inclinations, interests and needs of the child as well as child's 'I' the most completely. Opportunity to render actions, behaviour and activities of the cartoon character in a play deepens child's understanding of norms, human relations.

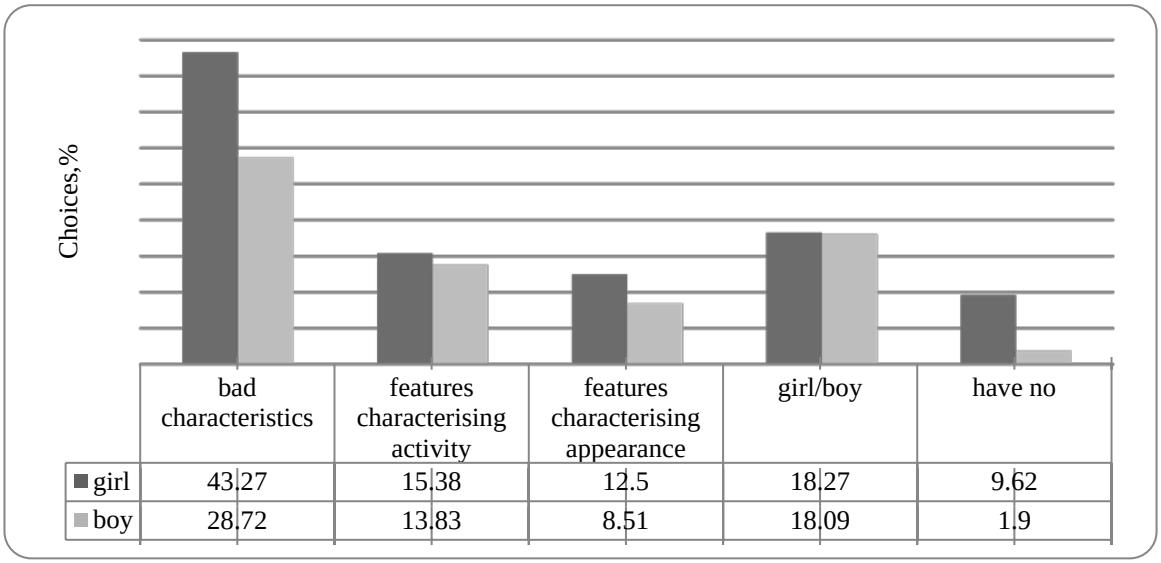


	good characteristics	features characterising activity	features characterising appearance	features characterising power	girl/boy
girl	59.68	33.06	35.48	10.48	2.42
boy	42.64	44.96	4.65	42.64	0.78

Figure1. Characterisation of cartoon characters chosen by boys and girls.

Answers to the question – Why you don't like the character and which of his/her characteristics you don't like? – show that most of the children (45 girls, 27 boys) are attributing general bad characteristics to the mentioned cartoon characters *(bad, lazy, sly)*. Five girls, without naming specific characters, explained that do not want *the bad ones*, one girl is not willing to have characters from *horror movies*, other – *from "The Book of Secrets"*.

Second largest group of unwanted cartoon characters is formed by characters, which, in the child opinion, are destined only for boys or only for girls, indirectly showing that child at pre-school age has a certain stereotype on the gender for which toy has been made. 19 girls and 27 boys, when explaining, why they do not want some of the cartoon characters, mentioned that particular character is for girls or for boys. Boys find princesses, Ice Queen, Cinderella, Red Riding Hood, Snow White unacceptable, whereas girls do not like characters as Pokemon, dragon, Superman, Cars, Space Heroes, because those are toys for boys. A five-year-old girl mentioned that she is not willing to have *boy toys – Spiderman, Lightning McQueen. Those are toys, with which only boys are playing* (Figure 2).



	bad characteristics	features characterising activity	features characterising appearance	girl/boy	have no
girl	43.27	15.38	12.5	18.27	9.62
boy	28.72	13.83	8.51	18.09	1.9

Figure 2. Characterisation of cartoon characters not wanted by boys and girls.

Among mentioned toys there are not only cartoon characters, but also dolls and toy cars. Eight boys are not willing to have dolls, because those are girl toys, and only girls are playing with dolls, they are boring: *girl toys are boring* (boy aged 6), they *should be gifted to my sister* (boy aged 5). Boys find the doll Barbie as particularly unsympathetic, 11 boys are not willing to have it, *because it is for girls and it is not cool* (boy aged 6), *girls always play with them, boys are afraid of it* (boy aged 6). One girl does not want *toy soldier, because I'm not guy* (girl aged 6). Seven girls find car as the most unsuitable toy: *I'm not boy and I can't understand, how boys don't get bored of playing with cars* (girl aged 5).

One of the most characteristic stereotypes that starts to emerge already in early childhood is related to the gender differences. Until the age of five, child as an active researcher of cultural environment gets particular understanding about behaviour and activities suitable to each gender. This comprehension is the most explicit in a play, or more precisely – in the choice of toys. This fact is reflected also in the research conducted by N.K.Frīmen (Freemen, 2007). In this study children aged between three and five were asked to divide toys by gender, and it indicated that girls know that toys suiting them are dolls, dishes, while toys for boys are – cars. Choice of the mentioned toys indicates also formation of a particular behavioural model, emergence of specific stereotype. Stereotypism is one of the features characterising authoritarian or untypically thinking personality. Such personality is guided by negative and unsubstantiated judgements, prejudices, discriminatory treatment. If person thinks in strict, rigid, externally determining categories, his/her world perception and understanding is simplified and person turns away from freedom as pre-condition for own self-realisation (Rubene, 2008, 146). A toy for pre-school child should be chosen basing on own interests, needs and not guiding from rules established by mass media.

Nowadays child is living in a different world than his/her parents and grandparents used to live. Environment has become more comprehensive, urban, and richer in visual incentives. Also rage of toys available to our children is wider. On the one hand, child's world has become wider, while on the other hand, child is restricted and imprisoned in childhood. All new, unseen captivates and attracts attention of the person, also of child. Although environment that is continuously supplemented with various new impressions, which can not be observed, memorised and used "with own original understanding or idea" for long (Svenne, 1930, 78), numbs the child, causes overload and threats for the development of personality.

Environment provides information necessary for the development of a child, play is a tool to process this information. One of the most effective ways, how child inherits and acquires particular behavioural rules of the society, rules, benchmarks, is imitation that is deliberate acting, activity and behaviour in compliance with what has been seen. Views on world and people relationships for normal child are formed by observing, following the example. Imitation done of free-will helps child to accomplish things he/she has intended to do, it supplements stock of child's cognitions and ideas and helps to find out unclear or uncertain views. Life experience, understanding of right or wrong actions and behaviours of a modern child are largely created by mass media, cartoon characters that have become an inevitable part of a nowadays child's sub-culture. Child, by identifying himself/herself with some of cartoon characters, perceiving it as and ideal to emulate, behaviour, actions and attitudes of which to imitate, starts to form a particular benchmark of the conduct.

Cartoon characters embody image having certain style of behaviour, stable moral characteristics. Due to the fact that cartoon characters personify benchmarks of moral image, child, when engaged in activities with them, playing stories, problem situations, characters, discovers and in the meantime gains own moral experience: *I like movie "Medicopter", I also want to save people and be driver of a helicopter* (boy aged 5). When choosing toy – cartoon character, child accepts its actions as norm, standard and example for own actions. We may assert that such characters take important social role in the acquisition of social norms, habits, behaviours, actions, because "it is hard to imagine language and morality otherwise than as collective phenomena" (Ēriksens, 2010, 127). Moreover, child easily complies with, accepts and imitates morality of the group. Child inherits norms, values and upbringing aims of particular environment by operating and acting in specific environment, moreover child has to recognize the norms, conventional behaviour as well as he/she has to experience, get trough them emotionally in order to find own, personal position.

Evaluation of children answers shows that pre-schooler perceptions about socially significant values, norms, behavioural models are not homogenous. Children do not have united, common example to resemble. Same characters (Shrek, Tom&Jery, Betman, Ninja turtles) are included in list of both desirable and unwanted toys, and both good and bad characteristics are attributed to them. In the pedagogical process it is significant that toy – cartoon character, which is an "object having own story" (Brougère, 2006), facilitates development of the child as a whole, and:

- consummates child's experience in living standards;
- deepens child's understanding of social norms, values;
- allows to get acquainted with various behavioural models.

Children answers highlight issues of concern, which emphasise the role of an adult as an intermediary. Adult, as builder of environment and observer, helps to evaluate actions of character, by helping child to understand meaning of what has been seen in cartoon, see the most important things. Not always and not all cartoon characters may serve as perfect examples.

Analysis of pre-school education pedagogue survey results indicates that the highest share (44.7 %) of surveyed teachers think that there are too many modern toys and mainly they are consumer durables giving short-term emotional satisfaction, moreover parents are obliged to purchase them, *to ensure that child is able to integrate into particular group of a society*. These toys do not further development of a child, because are *artificial, impersonal and aggressive.* 5.7 % of the respondents believe that traditional toys are more suitable and better for the development of a child. Only 21.9 % of the surveyed have positive attitude, indicating that adults are interested in the way how child understands the world. They think that *every time period has its toys; adults have to follow the course of time, new toys*, thus adults have to interest in things making child happy, attracting his/her attention or interest. Use of these toys has to be found, they have to be engaged in plays, because *some of modern toys stretch child's imagination and facilitate willingness to engage in various activities*

Conclusions

Analysis of pedagogical literature, interviews with children, and pedagogue experience led to following conclusions.

- Significant role in a socialisation of nowadays children is taken by toys – cartoon characters, which are integral part of modern child's life. Their behaviours, actions indirectly serve as an example and become important during development of pre-schooler's self-regulation, relationships with other people.
- Without united, common example to resemble child's opinion on socially significant values, norms, and behavioural models is developing heterogeneously, and thus role of an adult as an intermediary is becoming significant. The character's way of conduct, actions chosen by the child to be rendered in play depends on his/her socio-cultural development and understanding that is forming in close interaction with adult.
- Opinion on toys that are most suitable for child is formed by adult. It is important that child at pre-school age is able to choose positive examples to imitate, which help him/her to realize own abilities and move him/her towards human actions.

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Didactics of engineering sciences, usage of IT

THE COMPARING MATHCAD AND WOLFRAM ALPHA IN THE PROCESS OF INTEGRATION OF SOME FUNCTIONS

Svetlana Atslēga[1] Dr.Math., **Anda Zeidmane**[2] Dr.Paed.
Latvia University of Agriculture[1,2]
svetlana.atslega@llu.lv[1]; anda.zeidmane@llu.lv[2]

Abstract: Mathematics Department in the LUA has good experience in integrating IT program MathCad in mathematics study process for bachelor and Matlab for master programmes. The rapid changes in computer technology led to computer algebra systems - besides MathCad and Matlab there are also Wolfram Alpha, Mathematica and Maple which are used for education of future engineers. The paper describes and analyzes commercial software MathCad and Web resource "Wolfram Alpha", which is popular and helpful as free math software. The aim of the research is comparing two math softwares MathCad and Wolfram Alpha as a tool for calculation integration. For receiving results in MathCad in a convenient form, students are required to have theoretical knowledge. It can be a negative aspect for MathCad, but also a positive aspect for the student's knowledge. In Wolfram Alpha students have possibility to see alternative forms of result. Wolfram Alpha gives step-solutions. Although it is enough to use computation ability for most problems we meet in teaching of Math, in certain cases the program function becomes necessary and very helpful. Students can get necessary knowledge using MathCad to start using other more difficult mathematical softwares in future.

Keywords: rational functions, integration, software "MathCad", web resource "Wolfram Alpha".

Introduction

EU directives distinguish 8 key competencies, which should be developed for lifelong learning (Key competences…, 2006). One of them is for mathematical literacy and competences in science and technology. Mathematics knowledge and competences become essential in lifelong learning process. Mathematics is a discipline which is required as a background for specialists who work in environmental protection, engineering, construction, business, telecommunication, textile, new energy sources, etc.

The professors of Institute of Mathematical Sciences have identified eight key mathematics competences (Laursen, 2010). Competences concerning the ability to ask and answer questions about and by means of mathematics are: *Mathematical thinking* (mastering mathematical modes of thought awareness of the types of questions that characterise mathematics, ability to pose such questions**,** insight into the types of answers that can be expected); *Problem handling* (being able to formulate and solve mathematical problems, i.e., put forward different kinds of mathematical problems, pure and applied, open and closed, solve mathematical problems, if already formulated, whether posed by oneself or by others, and, if necessary or desirable, in different ways); *Modelling* (being able to analyse and build mathematical models concerning other areas); *Reasoning* (being able to reason mathematically). Competences *concerning the ability to deal with mathematical language and tools are: Representation* (being able to handle different representations of mathematical entities); *Symbol and formalism* (being able to handle symbols and formal mathematical language); *Communication* (being able to communicate in, with, and about mathematics); *Aids and tools* (being able to make use of and relate to the aids and tools of mathematics (incl. IT)).

The increasing expansion of Information Technologies worldwide creates a new social relationship – the information society. Therefore the necessity of the search and use of information has emerged. The concept of literacy has expanded and acquired a new name – information literacy. The objective of the education system is the development of information skills (Zeidmane, Cernajeva, 2011). An individual, who is information literate, is aware of the necessity of information, he/she has the ability to obtain information, use it effectively as well as estimate the result according to the requirements of the task and the relevant knowledge growth (Pickering, 2004).

As concerns the content of Mathematics Study programs at university, a compromise should be found between the acquisition of the fundamental knowledge, acquisition of know-how application of knowledge as well as the use of IT software in the calculation (Zeidmane, 2012). Mathematics Department in the LUA has good experience in integrating IT program MathCad in mathematics study process for bachelor and Matlab for master programmes. In mathematics study process for bachelor are 0.5 of contact lessons per week as laboratory work (MathCad) in addition to contact lessons per week as lectures and practical works. The teacher of MathCad in cooperation with the teacher of the practical work hand out homework to students about the corresponding topic which they must solve on the paper, demonstrating the process of solution step by step, afterwards in practical classes students check solutions themselves using MathCad programme. The analysis of the students' success and the students' survey at the LUA shows that students prefer the introduction of MathCad in the study subject of mathematics instead of learning MathCad as a separate subject supplied by mathematical examples. Students enjoy comparing the results of their individual tasks with the results obtained via MathCad, that, in turn, increase the motivation to solve more mathematic problems, since students are interested in solving several variants. The final tests complete the study period of individual tasks and MathCad problems thus the final tests show the improved scores.

The rapid changes in computer technology led to computer algebra systems - besides MathCad there are also Wolfram Alpha, Matlab, Mathematica and Maple which are used for education of future engineers. On the other hand, education is no longer limited to classrooms. Internet can play an important role in education. The Internet can be used to refer to information on different subjects, including mathematics. Students can use web resources for understanding the course of mathematics and for getting help, for example, Wolfram Alpha (WolframAlpha web resource, 2012). Further in examples software is discussed with the focus on possibilities, risks and limitations.

The computer and information competence of students of technical disciplines is a component of information literacy (Figure 1).

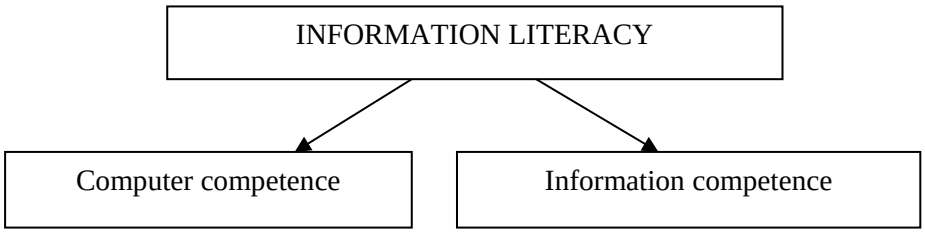

Figure 1. Component of information literacy.

Computer competence includes focusing on new knowledge of computer facilities and modern specialized computer programs. Information competence includes an important skill to estimate information critically and competently (Asherov, Bogdanova, 2007).

Methodology

WoframAlpha introduces a fundamentally new way to get knowledge and answer – not by searching the web, but by doing dynamic computations based on a vast collection of built-in data, algorithms, and methods. (WolframAlpha web resource, 2012)

The section Mathematics contains Elementary Mathematics, Numbers, Plotting&Graphics, Algebra, Calculus and Analysis, Geometry, Number Theory, Discrete Mathematics, Applied Mathematics, Logic & Set Theory, Mathematical Funkctions, Advanced Mathematics, Mathematical Definitions, Famous Math Problems. In this paper we consider the subsection Calculus & Analysis. This subsection consist of Integrals, Derivatives, Limits, Sequences, Sums, Products, Series Expansions, Coordinate Geometry, Differential Equations, Complex Analysis, Vector Analysis, Integral Transforms, Numerical Analysis. Indefinite Integrals, definite integrals, multiple integrals, numerical integration and integral representations are considered in the sub-subsection Integrals. In this paper only indefinite integrals are discussed. The knowledge about indefinite integrals is applied in definite integration, double integrals, ordinary and partial differential equations. To symbolically evaluate

indefinite integrals, you can write "int *expression* dx" or "integrate *expression* dx" and press "enter" to get the result of integration and other possibilities.

MathCad is industrial standard technical calculation tool for engineers worldwide. MathCad delivers all the solving capabilities, functionality, and robustness needed for calculation, data manipulation, and engineering design work. By combining calculations, graphs, text, and images in one document, MathCad enables knowledge capture and publication that aid management of large projects. MathCad provides online Tutorials; QuickSheets of working examples of MathCad functions and applications; and Reference Tables with math, science, and engineering formulas. In this paper we use the MathCad 14 version. MathCad lets enter equations, text, and plots anywhere in the worksheet. Each equation, piece of text, or other element is a region. By defining variables and functions, students can link equations together and use intermediate results in further calculations.

When students evaluate an expression numerically, MathCad returns one or more numbers. When MathCad calculates symbolically, the result of evaluating an expression is generally another expression. Students can make the numeric and symbolic processors work together, so that an expression is simplified before the numeric processor calculates it. To symbolically evaluate indefinite integrals, you can use MathCad's indefinite integral operator. Then the placeholder for the integrand is filled in. The integration variable in the placeholder is placed next to the "d". It is necessary to click "$\rightarrow$" on the Symbolic toolbar and press "Enter". The Symbolic menu commands can be used. The Symbolic menu commands perform the same manipulations as many of the keywords listed in online Help. For integration it can be applied successfully the commands: simplify, substitute, factor, parfrac.

Integration of rational functions. One of the most important classes of elementary functions, whose integrals can be found in a comparatively simple way, and always means elementary functions, is rational functions. Except for a few very special cases, currently we have no way to find the integral of a general rational function.

A rational function is a function which is the quotient of two polynomials. Consider integrals of the type $\int \frac{P(x)}{x^2+px+q}dx$ where $P(x)$ is a polynomial, $p,q \in R$. If the degree of the polynomial $P(x)$ is greater than 1, the division of $P(x)$ by x^2+px+q results in a polynomial $Q(x)$ and a polynomial $ax+b$, as the remainder. Consequently $\frac{P(x)}{x^2+px+q} = Q(x) + \frac{ax+b}{x^2+px+q}$. The integration of the polynomial $Q(x)$ does not present any difficulties and hence the problem reduces to integrating a fraction $\frac{ax+b}{x^2+px+q}$, if $a^2+b^2 \neq 0$. If $x^2+px+q = (x-x_1)(x-x_2)$, where x_1 and x_2 are two different real numbers, then there exist real constants *A* and *B* such that $\frac{ax+b}{x^2+px+q} = \frac{A}{x-x_1} + \frac{B}{x-x_2}$, what is useful for integration. Unknown constants *A* and *B* are found by "the method of indefinite coefficients". If the polynomial $x^2+px+q = (x-x_1)(x-x_2)$, where x_1 and x_2 are two different real numbers, then there exist real constants *A* and *B* such that $\frac{ax+b}{x^2+px+q} = \frac{A}{x-x_1} + \frac{B}{x-x_2}$, what is useful for integration. It is important for the student to know about integration methods "the method of indefinite coefficients".

Results and discussion

Consider the case when the polynomial x^2+px+q has a double root or is positive on an interval. Using software "MathCad" for calculating this examples, students have no problem with solutions. The result is given in easy to use form. Students should remember that the computer algorithm might simplify expressions different from what we are used to. Also, it does not give the integration constant "$+C$".

The software MathCad is commercial software, therefore students can also use free web resource Wolfram Alpha. Using Wolfram Alpha, students can have a problem with the writing expressions. MathCad lets students enter the text and mathematical expressions anywhere in the worksheet and type equations as students are used to seeing them, expanded fully on computer screen. Wolfram Alpha lets students enter the text in a certain place using specific symbols as brackets, special functions for roots and other. A positive aspect in Wolfram Alpha is the possibility to get more

information about functions in results. Students can use what kind of information (documentation, properties or definition) they want to see the function in the result. Students can get the definition and properties of these functions visiting the website (WolframMathWorld web resource, 2012).

The student can use Wolfram Alpha not only for getting integration results. It is important that they can see steps of integration. It is a good possibility to learn the methods of integration or to understand what kind of method can be used for this example. The negative aspect is that students can use this possibility only for three integrals during a day. If they want to work more, it is the service for a fee. Students get the alternate form of the result among the results in Wolfram Alpha if it is possible.

Example. Calculate the indefinite integral $\int \frac{dx}{x^2-3x+2}$.

The polynomial $x^2 - 3x + 2$ has two different roots $x_1 = 1$, $x_2 = 2$ (both the real numbers). The result in MathCad is given as in Figure 2.

$$\int \frac{1}{x^2 - 3\cdot x + 2}\, dx \rightarrow -2\cdot \operatorname{atanh}(2\cdot x - 3)$$

Figure 2. The result of integration for function $\frac{1}{x^2-3x+2}$.

The integration result has inverse hyperbolic tangent. This result is difficult for understanding for students. Almost all students do not know about the inverse hyperbolic tangent.

This rational function $\frac{1}{x^2-3x+2}$ can be written in the form of the partial fractions decomposition and then integrate new expressions (1).

$$\int \frac{dx}{x^2 - 3x + 2} = \int \left(\frac{1}{x-2} - \frac{1}{x-1}\right) dx = \ln|x-2| - \ln|x-1| + C \quad (1)$$

The result is easier to understand for students and if it is necessary to continue work with multiple integrals or differential equations. The similar result is obtained from MathCad result, using the formula (2) and (3)

$$\operatorname{arctanh} x = \frac{1}{2}\ln\left|\frac{x+1}{x-1}\right|, \quad (2)$$

$$-2\operatorname{arctanh}|2x-3| = -\ln\left|\frac{2x-2}{2x-4}\right| = -\ln\left|\frac{x-1}{x-2}\right| = \ln|x-2| - \ln|x-1| \quad (3)$$

These transformations require additional knowledge for students.

Sometimes students can get result more easily using MathCad functions (simplify, expand, factor, parfrac etc.) (Figure 3).

$$\int \frac{1}{x^2 - 3\cdot x + 2}\, dx \rightarrow -2\cdot \operatorname{atanh}(2\cdot x - 3) \text{ simplify } \rightarrow \ln(4 - 2\cdot x) - \ln(2\cdot x - 2)$$

Figure 3. The result of integration for function $\frac{1}{x^2-3x+2}$ using command “simplify”.

As regards MathCad, students can at first find partial fractions decomposition for a given rational function (the MathCad function parfrac) and then evaluate indefinite integrals (Figure 4).

$$f(x) := \frac{1}{x^2 - 3x + 2} \text{ parfrac } \rightarrow \frac{1}{x-2} - \frac{1}{x-1}$$

$$\int f(x)\,dx \rightarrow \ln(x-2) - \ln(x-1)$$

Figure 4. The result of integration for function $\frac{1}{x^2-3x+2}$ using at first command "parfrac".

Students get a result in a way that is easy and understandable for them, using Wolfram Alpha without transformations (Figure 5).

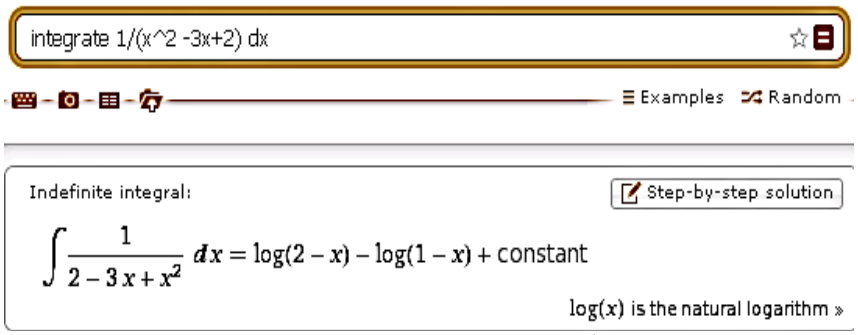

Figure 5. The result of integration for function $\frac{1}{x^2-3x+2}$ in WolframAlpha.

Choosing step-by-step solution, students can see only one method of integration (Figure 6, Figure 7).

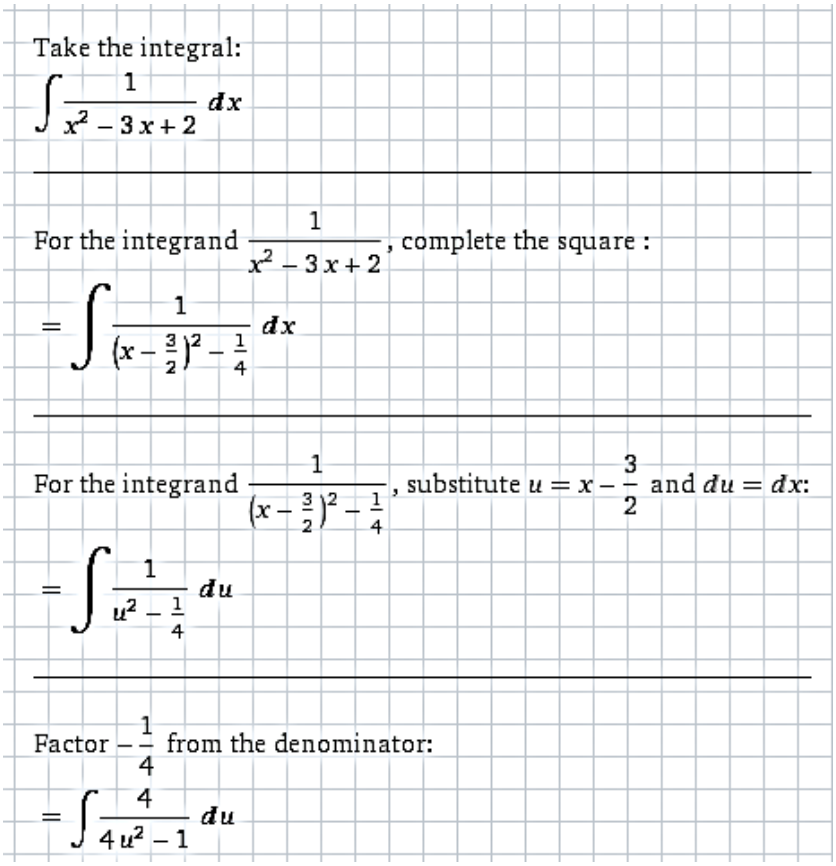

Figure 6. The integration using step-by-step solution in WolframAlpha (the beginning of the integration).

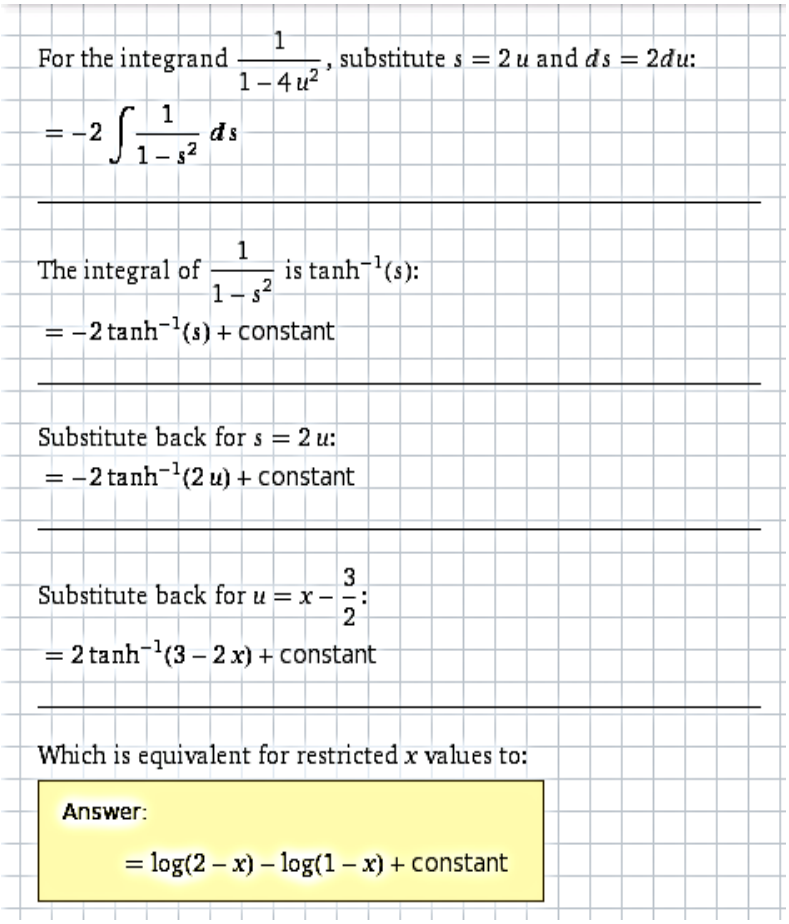

Figure 7. The integration using step-by-step solution in WolframAlpha (the end of the integration).

There is a new function - inverse hyperbolic tangent in the process of integration. It is not understandable for students how the inverse hyperbolic tangent can be used to get the function of the natural logarithm.

It is necessary to calculate the indefinite integral $\int \frac{11x^3-107x+108}{x^4+x^3-30x^2+76x-56}\,dx$. If students integrate rational function as given in MathCad, it takes more time to get the result. The similar result can be obtained faster if at first students use the method of partial fractions and then integrate these fractions.

Similar results are obtained by both programmes - the web source "Wolfram Alpha" and MathCad. Choosing step-by-step solution, students can see the method of indefinite coefficients using partial fractions. Also they can see the alternative forms of result.

Conclusions

1. Software "MathCad" is commercial software. Web resource "Wolfram Alpha" is free internet resource but with restrictions on the use of additional function (step-by-step solution).
2. With MathCad students have the ability to save the obtained result and it can be used in future. In Wolfram Alpha students have the opportunity to save history and also later get information about examples and about the date when it was done. If they do not choose to save history, students see the result only once and later they have to write it as a new expression.
3. As a result, only one form is given in MathCad. Students can get special functions. For receiving results in MathCad in a convenient form, students are required to have theoretical knowledge about integration of some rational functions. It can be a negative aspect for MathCad, but also a positive aspect for the student's knowledge. In Wolfram Alpha one form of result is given. On the other hand, students have possibility to see alternative forms of result (if these forms exist).

4. Wolfram Alpha gives step-solutions. It is important for students who want to get more knowledge about integration and different transformations. MathCad has not such function.
5. If some functions are not known, the students can choose reference to Wolfram Mathematica to see definitions and properties of these functions.
6. In MathCad students should know methods of integration to get the results with more functions. In Wolfram Alpha it is possible to work without knowledge of methods of integration.
7. As regards MathCad, it is necessary to have time for explanation and learning how to work in MathCad window. On the other hand, students can get necessary knowledge using MathCad to start using other more difficult mathematical softwares "Matlab", "Mathematica" and others in future. Similar examples can be used in Wolfram Alpha.

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VIRTUAL LABORATORY IN THE ENGINEERING EDUCATION

Maciej Drabik[1] PhD, **Alina Gil**[2] PhD, **Urszula Nowacka**[3] PhD
Jan Dlugosz University, Czestochowa, Poland[1,2,3];
m.drabik@gazeta.pl[1]; a.gil@ajd.czest.pl[2] ; nowackau@interia.pl[3]

Abstract: The following article presents the concept of uses virtual measurement tools as a modern means of teaching in the engineers' education, in the context of effectiveness of developing expected engineering skills. A short evolution of the measurement system leading towards visual programming is also presented. The article describes construction of virtual devices in LabVIEW, methodology of designing measurement systems in this program, as well as features of virtual instruments and their possible uses in laboratory measurements.

Keywords: virtual laboratory, visual programming, engineering education.

Introduction

Teaching technical subjects is specific - students should be given a chance to understand the subject, i.e. they should be taught to how use their knowledge in practice, therefore measurement laboratories are very important in engineering education.

Classic measurement laboratories, equipped with gauges (transducers) properly selected to the measured quantity (manometer, dynamometer, etc.), measuring instruments (oscilloscopes, voltmeters, frequency meters), as well as signal processing systems are increasingly becoming replaced by virtual laboratories.

"Virtual (Latin: *virtualis* – possible) means possible to come into existence or theoretically possible. It is something that does not exist in reality, but it fulfils its role by means or methods other than the traditional ones. Nowadays, the concept of being "virtual" is strictly related to computer technology, as: existing solely on a screen and in computer memory, but acting as in reality (Świsulski, 2005).

Virtual instruments allow for performance of actual measurements, however, with the use of other methods. In classic instruments, buttons and switches placed on the front panel are used. In a virtual device, the front panel with buttons, switches, etc. is simulated on the screen of a computer and operated by mice, keyboard or a touchscreen. (Jemielniak, 2012)

Modern metrology is explicitly based on methods which virtualise the act of measuring. Advantages of virtual measurement methods cause gradual replacement of classic methods. Virtual measurement instruments can be constructed at relatively low expenditures both for their use at test stations in laboratories educating engineers of various specializations and in scientific laboratories. As a result, scientists and engineers will be able to work on projects by conducting remote simulation of events, experimental data interpretations and in some cases, performance of actual experiments in a specially adopted instrumentation laboratory.

The aim of this article is to present the modern concept of uses virtual measurement tools in the engineers' education. The examples shown in the article allow to analyze and evaluate the usefulness of these tools.

Methodology

Computerization of the measurement process

Computerization of the measuring process consisted, at the beginning, in developing a control program from scratch with commands for communication between the computer and input/output devices. To this end, high-level programming languages were used (Basic, Pascal, C). This very laborious way allowed for receiving data from sensors, processing it and sending commands.

The next step was developing a standard which defined the methods for measurement devices programming. In the 1990s SCPI standard was established (Standard Commands for Programmable

Instruments). It was a set of instructions allowing for complete programming of measurement device regardless of its type.

The development of high level programming languages (Pacal or C) and the graphical operating system Windows at the beginning of 1990s set conditions for development of integrated measurement environments. Different companies (National Instruments, Hewlett-Packard, etc.) began to build programming packages, facilitating design of measurement systems of high measuring capacities and easy operation. Textual and graphical environments (e.g. LabWindows/ CVI) and those typically graphical (LabVIEW) were created. The former are a combination of graphic design with code writing, whereas the latter do not involve program code writing at all. An increasing number of technical universities has been actively engaging in this type of teaching. We can find several examples of the use of virtual laboratories in literature (Sudół, 2009; Urbański, 2010; Biernat, Urbański, 2012).

Purely graphical environments proved to be better received, whereas classic programming languages have been gradually landing on the scrap heap. Currently, a significant majority of measurement systems programming environments are graphical environments (Winiecki, Nowak, Stanik, 2001). They do not require the user to know any programming languages.

Programming in LabVIEW

The most popular among a few visual programming environments is LabVIEW (Laboratory Virtual Instruments Engineering Workbench) developed by National Instruments. It is the best developed and user-friendly environment with the largest libraries. (National Instruments, 2012)

The adopted terminology, graphical symbols and block method of presenting how the program functions in LabVIEW do not differ from the notation commonly used by engineers, while the "pictorial" character of the environment helps to graphically present data (Tłaczała, 2002).

Programming in LabVIEW involves the following steps:

- a control panel of the virtual device is designed in a panel window,
- a graphical program is created in a diagram window,
- an icon (plug) is designed to represent the program, enabling its attachment to other programs.

The panel constitutes an interactive interface with the user (Fig. 1). It simulates the front panel of the physical measurement device (Świsulski, 2005). Controls for entering data into the program (switches, knobs, displays) are placed on the panel along with Indicators used for exporting data from the program to the user (displays, charts, etc.). The panel elements are operated by a mouse, a keyboard or a touchscreen.

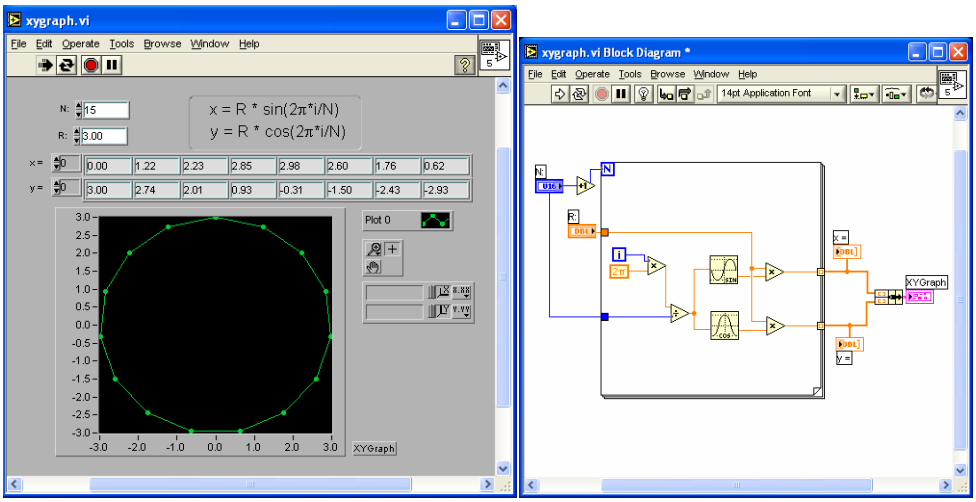

Figure 2. The front panel and the diagram in the LabVIEW environment. Program example (virtual instrument), which draws a polygon (Targowski, Sylwestrzak, Bajraszewski, 2012).

The diagram in figure 1 contains a source program of the application in a graphic language. The diagram shows icons which represent particular elements of the program (function blocks) and connections among elements indicating the data flow direction. Programs in LabVIEW are controlled by the data flow, which means that successive node of the block diagram starts to work when it has all of the required data on all of their inputs and finishes its work by generating data to all of its outputs. There are no limitations as far as sequential programming is concerned, function blocks may have many independent data inputs, many operations can be performed simultaneously.

Methodology of measurement system design

Methodology of designing a measurement system in LabVIEW can be divided into a few stages (Winiecki, Nowak, Stanik, 2001).

1. Introduction to a design:
   a) defining functions and parameters of the device being designed,
   b) selection of the right equipment (sensors, data acquisition devices, etc.),
   c) analysis of an equipment controller or designing a new controller.
2. Creating a graphical panel of the measurement device:
   a) placing elements which are necessary for functioning of the device inside the panel editor window, i.e.: knobs, slides, displays, etc.,
   b) proper distribution and configuration of panel elements.
3. Creation of a block diagram (graphic source code):
   a) distribution of the existing icons (they are automatically moved onto the diagram from the graphical panel which is being created - the icons are equivalents of panel elements),
   b) inserting additional elements and procedures (if necessary):
      – loops e.g.: while, case,
      – interface functions,
      – controllers of physical devices,
      – sequence structures, etc.
   c) combining elements so that the device functions properly.
4. Start-up and program testing.

Virtual measurement devices

Most of the traditional measurement devices can nowadays be replaced by a new system composed of a sensor, a signal preparation module and a computer equipped with a data acquisition card (DAQ) and suitable software (DasyLab, LabWindows/CVI, LabVIEW and other). This type of software helps to build virtual measurement and control devices. They use the vast and still increasing capacities of computers in calculations and presentations of results. Thus, in a virtual device a signal is provided not to the input of e.g. an oscilloscope, but DAQ cards of the computer in which the program performing the tasks of an oscilloscope, i.e. a “virtual oscilloscope” is. If we need a different device, e.g. a voltmeter, we shut down the oscilloscope program and start a programme which performs the tasks of a voltmeter or another device. If we do not have the program which would serve as the virtual device we need, we can write the program ourselves by using, e.g. the LabVIEW programming environment.

One of the most crucial advantages of a virtual device is its functional flexibility, i.e. one equipment block (a computer + a DAQ card) enables creation of a wide collection of various virtual devices performing different functions (Winiecki, Nowak, Stanik, 2001). This fact, as well as reducing the amount of equipment to the minimum have substantially decreased the cost of the device. What is more, the time spent on developing a new device and its modification in programming environments, such as LabVIEW, is very short.

A virtual device does not impose such limitations as it is in the case of a physical device, which provides only one displayer or scale on which all of the information is presented. Each measurement parameter can have a separate indicator in a virtual device. Therefore, operation of a virtual device is

intuitive and easy. It also ensures a lot freedom in shaping the front panel. You can freely distribute indicators, select their shape, style and size. The shape and size of displayers, colours of particular elements and background, as well as types of chart lines, etc. can be selected. Moreover, options for presentation of results are wider. These are no longer limited to single numbers, but instead include also tables, charts, matrices, graphs. Processing of results is not limited either, as it is in the case of a classic device. The software enables to extend processing and results analysis range.

Results and discussion

Virtual RLC series circuit

The below figures present a panel and a diagram (Fig. 2) of a virtual device, which simulates the functioning of a simple, perfect RLC series circuit (National Instruments, 2012). An experimenter may set the supply voltage frequency values, as well as resistance, inductance and capacitance. The device calculates current in the circuit and the values of current on particular elements of the circuit.

The front panel of the device contains the following parts:

- four pointers (Current, U_R Voltage, U_C Voltage, U_L Voltage) with additional numeric indicators;
- three numeric controls: R, L, C for setting the values of circuit elements;
- two numeric controls in the form of knobs (Voltage, Current) for setting the parameters of the supply voltage;
- a Stop button (end of simulation) used to stop the work of the program;
- graphical elements.

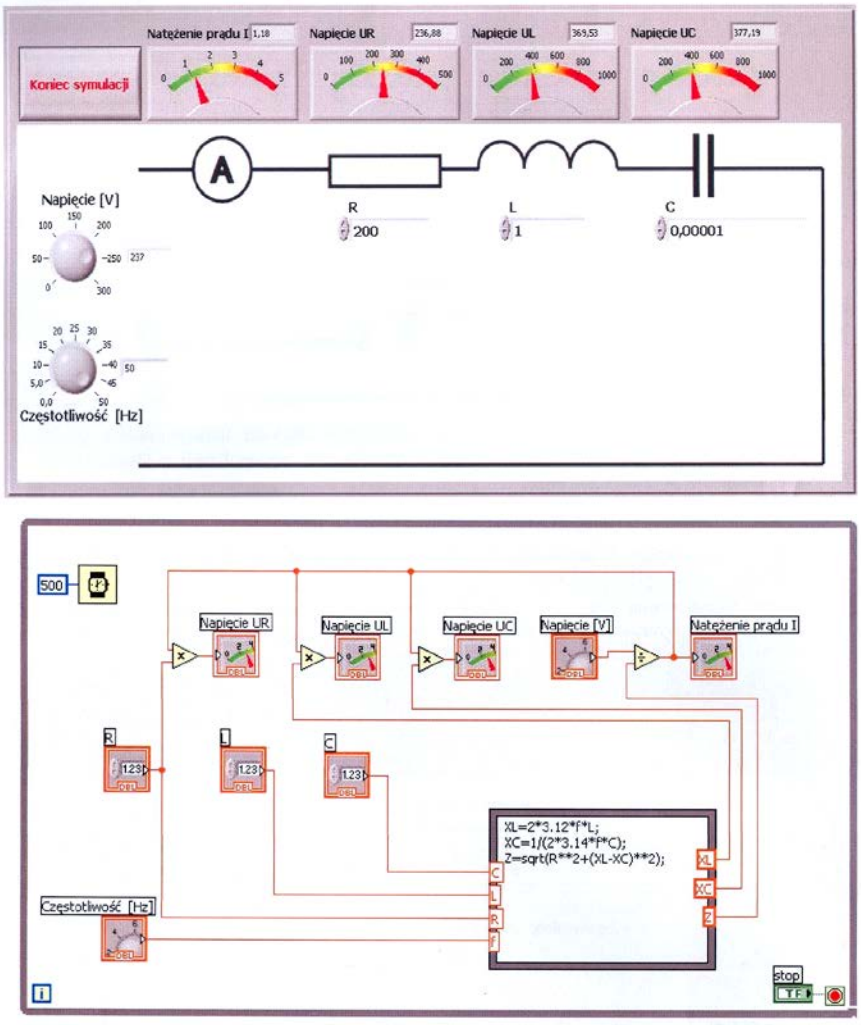

Figure 3. The front panel and the diagram of the virtual device.

Values set by the experimenter:

U - supply voltage in V (volt);
F - supply voltage frequency in Hz (hertz);
R – resistance of the resistor in the circuit Ω (ohm);
L – inductance of the coil in H (henry);
C – capacitance of the capacitor in F (farad).

Intermediate values and values to search for:

X_L – inductive reactance measured in Ω (ohm), $X_L = 2\pi fL$;
X_C – capacitive reactance measured in Ω (ohm), $X_C = 1/(2\pi fC)$;
Z – circuit impedance measured in Ω (ohm), $Z = R^2 + (X_L - X_C)^2$;
I - current in the circuit measured in A (ampere), $I = U/Z$;
U_R – voltage across the resistor R measured in V (volt), $U_R = I \cdot R$;
U_L – voltage across the inductance L in V (volt), $U_L = I \cdot X_L$;
U_C – voltage across the capacitor C in V (volt), $U_C = I \cdot X_C$.

The device diagram (Fig. 2) presents all of the elements placed on the panel. These include voltage, frequency, resistance, inductance and capacitance controls, V voltage and I current indicators, as well as U_R, U_L, U_C voltages. There is also a stop switch. Calculation of the required parameters X_L, X_C, Z is performed in the Formula Node structure. In order to ensure continuous operation of the program, a loop While has been introduced. A Wait module prevents monopolization of computer resources by a continuous loop.

ALPHA controller application

Another example of using visual programming is ALPHA controller from Mitsubishi (Fig. 3). It is a microprocessor device which can control various devices. It has 6 relay inputs (which assume the signal values of 0 and 1) and 4 outputs, therefore it can operate 6 input signals and simultaneously control four objects.

Figure 3. ALPHA logical controller, model AL-10MR-D (Automatyka Napędy..., 2012).

The controller is programmed with the use of function blocks, i.e. blocks which fulfil different functions. Apart from 6 logic functions, the controller also has 16 blocks fulfilling other functions, which are useful in controlling. Programming of the controller is performed on a computer connected to the controller by an adequate conduit.

The controller is programmed by a graphic program, AL.-PCS/WIN-E, working in the Windows environment. The platform used for controller programming is the so-called Function Block Diagram Base (FDB) (Fig. 4). It is a field on a computer screen with squares along the left edge which correspond to controller inputs and squares along the right edge which are outputs. To the left from the FDB field, there are icons of input devices (IN), output devices (OUT), logical function (LOG), other functions (FUN), as well as an I/O cable icon. When programming a controller we place particular elements (lamps, switches, heaters, diodes, pistons, etc.) at the inputs and outputs of FDB fields. We distribute the function blocks inside the FDB field. We connect the inputs with the function blocks and the blocks with the outputs. In order to do that, we use the "drag and drop" method - by clicking on a given icon and releasing the mouse button in the place where we want to place the icon. Designing a control system comes down to arranging "logical blocks" and interconnecting them. After designing the system, we test it by selecting the simulation mode. By clicking on the inputs we change the signal value from 0 to 1 and the other way round. Colours change on the screen. In places where the value is 1, the red colour appears. Inputs, outputs and cables with no signal remain blue. We may track the course of a signal through the entire control system - from the system input to the output.

If the control system we designed does not work as it should in the simulation mode, we return to the design mode. We make changes and test the system again in the simulation mode. If it works properly, we copy the control program from the computer to the controller and we test how the controller controls a physical object connected to it. Figure 4 presents the examples of control programs.

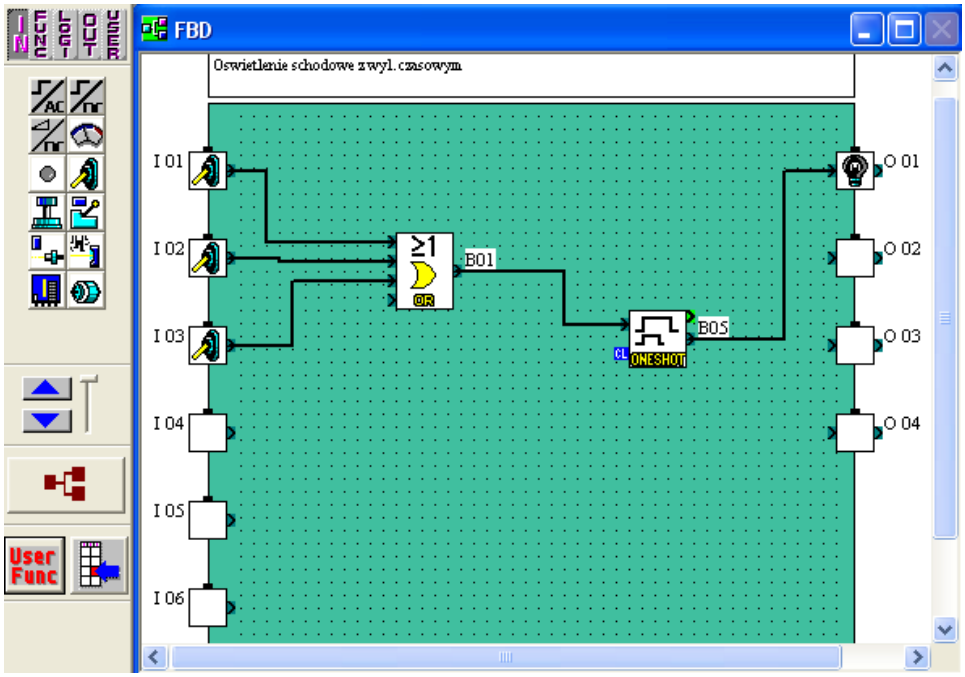

Figure 4. Function block diagram base.

Below we present a car park barrier control program (Fig. 5a, 5b). The barrier is activated and stopped by a signal from a remote control (input I01). The output signal which sets the barrier in motion is provided to the output O01. The same signal is simultaneously send through a delay unit and a pulse generator to output O02 where a warning lamp is placed. The delay unit and pulse generator trigger the blinking of the warning lamp during the barrier movement with the lamp reaction being delayed in relation to that movement. Symbolic photoelectric cells are marked on I03 and I04 inputs, which should be placed in front of and behind the barrier.

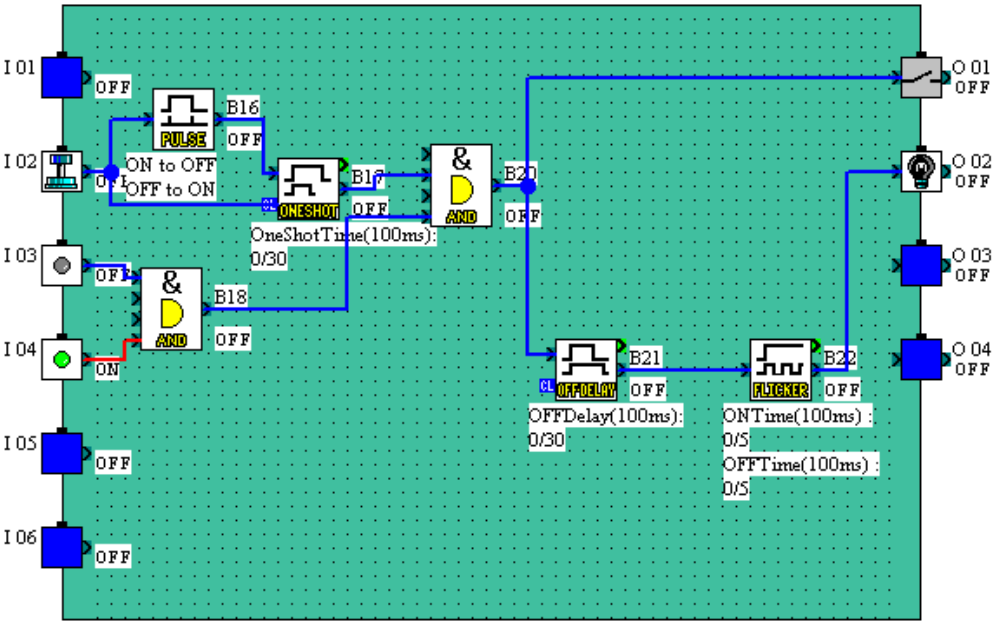

Figure 5. a) The car park barrier control program;

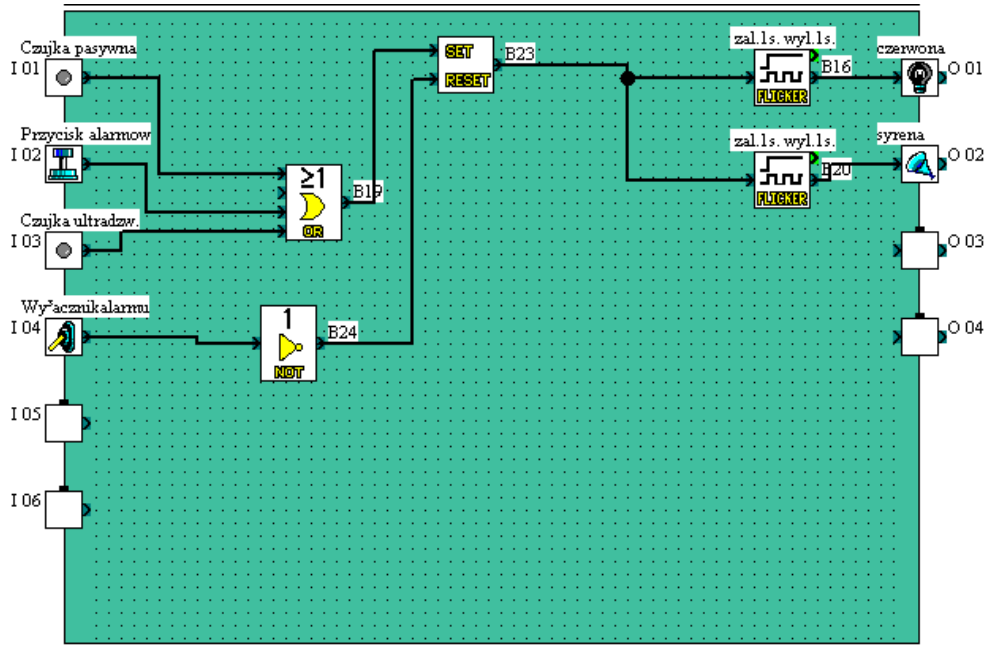

Figure 5. b) The alarm siren and lights control program.

They hold back the barrier when a car is within their reach. This prevents the barrier from damaging the car. Signals from those photoelectric cells reach the AND unit so that a signal from at least one of them could block the movement of the barrier. A result signal from photoelectric cells reaches the AND unit together with the signal from the remote control, since only a simultaneous signal from the remote control and both photoelectric cells may activate the barrier. A signal from the remote control reaches the PULSE unit earlier, which generates a unit pulse with the change of the remote control mode (from ON to OFF and vice versa) and to the ONE SHOT unit, generating a pulse with a programmed time, which enables closing and opening of the gate.

Conclusions

A modern didactic laboratory is a virtual laboratory, which replaces many (often very expensive) measurement devices. It is composed of a computer with adequate software, data acquisition card and appropriate sensors. It allows students to design and construct the required measurement devices on

their own. It combines educational, measuring and simulating aspects. Thanks to them, students become familiar with using modern research techniques and operation of integrated measuring systems in everyday work. An increasing number of technical universities have been actively engaging in this type of teaching.

An important obstacle which stands in the way of introducing the proposed methodology of technical classes is, unfortunately, a considerable amount of work, which is needed to design, make and test every laboratory station. Such effort can, however, be a part of studies curriculum. Performing the above-mentioned tasks may constitute the core subjects of Engineer's theses and - in the case of more advanced measuring systems - Master's theses. Such a solution regarding diploma papers bring many positive educational effects - it teaches students to be independent and to design with the use of modern IT tools.

Modification of measurement procedure by changing software installed on a computer, without a change of equipment components makes research and experiments more flexible, modern and easier for students of technical universities. Computer animation of a given phenomenon (technical process) combined with a simulation model allows students to conduct, with the use of computers, their own experiments and research, reflected in actual phenomena and processes, which is enabled by a well-equipped didactic laboratory. It should, however, be noted that computer simulation cannot and should not - despite its advantages mentioned in the article - entirely replace a physical laboratory or industrial practice by its virtual counterpart, but it may constitute complementary form of engineering education. Fascination with the computer world may not veil the fact that virtual laboratories are not sufficient in teaching all of the expected engineering skills, since they lower the feeling of hazard, introduce so many boundary conditions that the object of simulation does not often resemble its physical equivalent and a set of complex phenomena is thus treated cursorily.

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E-LEARNING IN TEACHING HANDICRAFTS: A MONITORING STUDY ON STUDENTS

Ann Ojaste Mg.paed.
Tallinn University, Estonia
ann.ojaste@tlu.ee

Abstract: The article analyses the need and possibilities of e-learning in teaching subjects of Handicraft, being based on the feedback from students of the faculty. e-Learning is becoming more widespread in the Estonian universities. They can be used independently or as part of traditional tuition. Future trends in e-learning are associated with the expression blended learning. This method has been also used in teaching special subjects of Handicraft and Home Economics bachelor level curriculum in the Tallinn University. However, in the current curriculum a number of subjects are practical oriented and e-learning can be used there rather in the theoretical part or in supporting practical studies. In order to get an overview of students' attitudes towards e-learning, a corresponding study was conducted. The analysis revealed that although e-learning supports achieving study outcomes, study process is flexible, it saves time and material resources, and it helps to improve ICT skills, the lack of direct contact and cooperation with the instructor has been described as the main disadvantage. Full-time students tend to prefer supportive method, whereas distance learners are more willing to use online study options. The structure of an e-learning course should give an opportunity for a student to choose, proceeding from one's previous knowledge and individual learning style, the best balance between face-to-face and e-learning.

Keywords: e-learning, handicraft, blended learning.

Introduction

The development of informative and communications technology (ICT) in Estonian higher education has become more active since 2003, when the consortium of Estonian e-University was founded and more attention was started to be paid to e-learning. e-Learning affords to improve the quality of the study process and design studies according to the new possibilities; it helps to extend and supplement the existing learning and teaching methods. Learning becomes really open as e-learning is accessible to everyone and is lifelong. On the other hand, the use of e-learning methods and ICT makes the study process substantially more efficient both for the learners and the society (Riiklik IKT..., 2009-2012).

One of the tendencies of e-learning is associated with the term blended learning. In most cases blended learning is understood as a way of blending face-to-face and technology-based teaching while there are different approaches in introducing blended learning into teaching. The main approach is how to get the two delivery modes into one (Torrão, 2007). The key of blended learning is to integrate face-to-face and online communication in such a way that the combined effect of the strengths of both methods would give better results than each of them separately (Garrison, 2011). The goal is to design learning activities that are congruent with the educational aim by replacing passive listening with collaborative and reflective learning activities and increasing interaction with the instructor (Garrison, 2011).

Teaching handicraft in e-learning is the most difficult, yet the most interesting field. It is not simple to arrange virtual studies in the field of handicraft, because most of the teaching and studying traditionally involves haptic information. The lack of interaction is usually considered as a weak point in e-learning handicraft (Kaukinen, Collanus 2005). Technology complements traditional instructor-led programs in current syllabus (Bersin, 2004). At Tallinn University creation and development of e-courses for teaching handicraft have been carried out in the framework of higher education projects „REDEL" (2004-2006) and „BeST" (2008-2013) which are managed by European Social Fund and coordinated by The Estonian Information Technology Foundation and The Estonian e-Learning Development Centre. Two web environments, IVA and MOODLE, have been created for uploading e-learning courses. Depending on the essence of the subject, courses with different proportions of e-learning have been applied in teaching: enhanced classroom learning, distance or on-line education and blended learning. However, the curriculum also includes several practical-oriented subjects (e.g.

„Textile Modelling“) the study outcome of which includes basic knowledge of the subject, analysing and designing skills as well as haptic technology-based skills needed for the product development process. In this case e-learning comprises partly blended learning and supportive method as well as enhanced classroom learning. Irrespective of the type of the blend, the focus must always be put on the learning outcome which is essential in evaluating the sustainability of the learner, the learning culture, means of instruction, (technological) infrastructure and tuition (Torrão, 2007). e-Learning process is an independent work which combines self-paced learning with instructor or facilitator support to develop specific knowledge and skills. The e-course structure is comparable to a college or high-school course which is based on the “program flow” model: a step-by-step curriculum which integrates several media into a chronological program or syllabus. The chapters build upon each other and end in an assessment to measure total learning. Because of this students will feel more engaged and can plan their training over time. The approach enables the teachers to track the progress and therefore also find any potential problems (Bersin, 2004).

One of the starting points of Estonian higher education strategy is learner-based education, where the learners' expectations, needs and preferences have become the cornerstone of the higher education system (Eesti kõrgharidusstrateegia..., 2006).

Methodology

In order to get an overview of students’ attitudes towards e-learning in practical-oriented subjects, a corresponding study was conducted among the full-time and distance learning students of Handicraft and Home Economics at the Tallinn University. The survey was anonymous but the age, admission year and form of studies was requested. The questionnaire included 29 questions. The questionnaire covered the objectives of achieving learning outcomes and ICT skills based on the previous e-learning experience, advantages and disadvantages of e-learning, and optimal e-learning and face-to-face study ratio in practical-oriented studies. In order to prevent dispersion of answers the majority of questions allowed multiple answers, yet provided a possibility for further comments. Some questions (3) enabled the subjects to freely express their opinion. The questionnaires were sent by e-mail; data was collected and processed with MS Excel.

Results and discussion

The selection included 54 students currently studying Handicraft and Home Economics at the Tallinn University. As a result of the survey 40 questionnaires were returned, i.e. 74%. All of the respondents were female, aged 19-53. The average age of the respondents was 25; the majority of them (67%) were full-time students, whereas 33% of them were distance learners. The respondents had been accepted at the university in the years 2007–2012. Majority of the respondents (47.5%) had an experience of more than 5 e-courses, 35% of them had attended 4 to 5 e-courses and 17.5% of the respondents 2 to 3 practical-oriented e-courses. All respondents had an experience of using the IVA e-learning environment of Tallinn University, 30% of them had also tried out the MOODLE e-learning environment.

All respondents agreed that the structure and contents of e-learning courses back up the study outcomes either certainly (67.5%) or partly (33%). The respondents considered it relevant to have an overview of the timetable, requirements, current information and deadlines which motivate to learn and plan the studies. They also considered it necessary to have an access to the study materials from a single web environment. Although multiple answers of the questionnaire included an option of considering e-learning unsupportive in achieving study outcomes, nobody made this choice.

The question ’*Which mode of learning is preferred when acquiring practical skills and knowledge?*’ enabled multiple answers. More than half of the respondents would like to decide for themselves in which way they would acquire skills and knowledge. In making a choice between face-to-face learning and independent online learning the subject’s complexity level would be decisive for 73% of the respondents in acquiring practical skills and for 55% of the respondents in acquiring theoretical knowledge. Face-to-face instruction by a lecturer was preferred by 45% of the students in picking up skills and by 40% in acquiring theoretical knowledge. An opinion was expressed that practical skills

develop the best by contact learning whereby e-learning materials provide extra support to independent work at home. It was also pointed out that instead of passive listening active learning was preferred. The combination of both options would be used by 40% of students in acquiring practical skills and by 33% in acquiring knowledge; an independent online learning was preferred accordingly by 25% and 33% (Figure 1). Undoubtedly, the student's prior knowledge and learning style play a significant role in this matter, but this is not the aim of this survey.

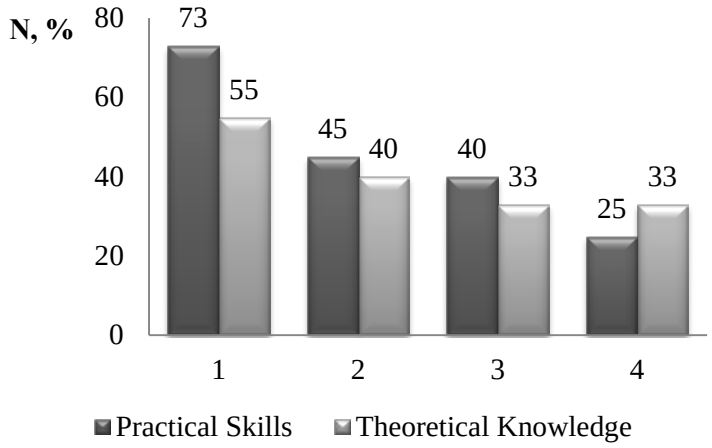

Figure 1. The students' preferences in acquiring practical skills and theoretical knowledge:
N- the number of respondents,
1 – face-to-face or independent online learning depending on the subjects' complexity level; 2- only face-to-face instruction; 3- combination learning; 4- only independent online learning.

The question on whether and to what extent would e-learning materials improve knowledge and skills, gave the following answers. It turned out that e-learning materials enable to acquire theory more thoroughly (45%) but do not serve that well in acquiring practical skills (43%). e-Learning materials were considered equally as good as textbooks in both cases by 33%, while face-to-face learning was evaluated as being equally important by 25% for studying skills and by 35% for getting theoretical knowledge (Figure 2). In acquiring theory, e-learning materials were considered to enhance face-to-face learning. In acquiring practical skills it is important to see the process with one's own eyes and have the possibility for asking questions at once, which makes e-learning materials a good supplement to face-to-face instruction. However, the subjectivity of evaluating the study materials and courses by the students must be considered as everything depends on the quality, optimal capacity, and structure of the study material.

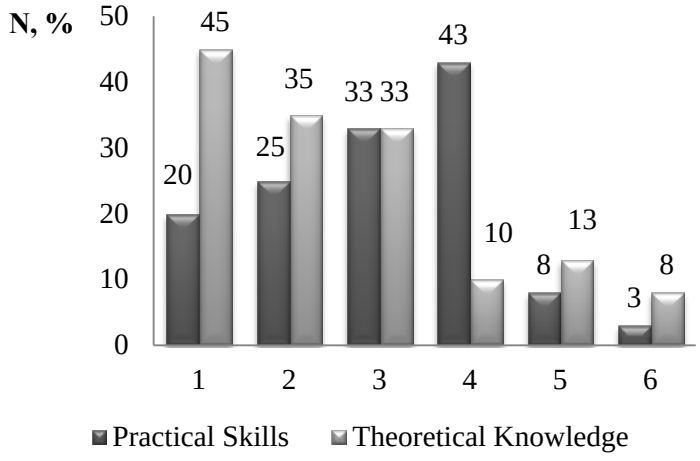

Figure 2. The supportive role of e-learning materials in acquiring skills and knowledge:
N- the number of respondents,
1-enable to acquire more thoroughly; 2-equal to face-to-face instruction; 3-equal to textbooks; 4-worse; 5-other choice; 6- don't know.

Although 45% of the students claimed that e-learning materials enabled to acquire theoretical knowledge more thoroughly and only 20% of students said the same about acquiring practical skills, it was additionally asked which study materials or sources have helped them to achieve the study outcome. Work instructions and graphics were the most appreciated (accordingly 85% and 78%), followed by photographs, slideshows, videos and special learning-objects (accordingly 68%, 65%, 58%, 58%), a little less valued were conspectuses and webpages (accordingly 45%, 38%) (Figure 3). Considering modern social media the list also included blogs and social networks, yet only a few students used these possibilities in learning process. The survey revealed that students would like to have more video materials and self-tests in the study process and an idea came up to draw all course materials, organised by themes, together into one database.

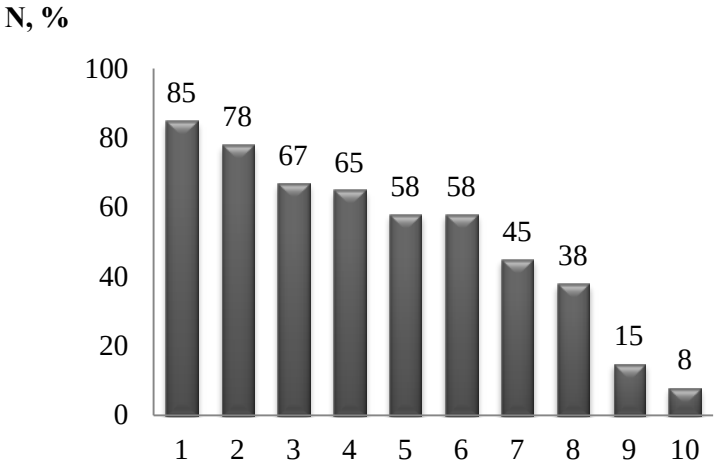

Figure 3. Materials and sources used in independent learning:
N- the number of respondents
1-work instructions; 2-graphics; 3-photographs; 4-slaid shows; 5-videos; 6- special learning objects; 7-conspectuses; 8-web pages; 9-blogs; 10-social networks.

Considering the modern study process it is very important to integrate ICT based knowledge and skills into teaching. In the first academic year students pass a course 'Effective Computer Usage', if necessary, but craft biased e-learning could serve as an ideal possibility to further improve the skills and knowledge. ICT skills which have been acquired by students through handicraft biased e-learning are provided in the subsequent ranking. The first place in ICT standard skills is taken by information search, assessment and analysis, followed by compiling presentations, file management and text processing and calculation. Among extended skills e-study environment management stands on the first place, but specialised programme management and ICT management stays at the bottom of the ranking (Figure 4). To sum up, 62% of the students assessed that their ICT skills and knowledge had changed for the better compared to the time prior to the studies, 35% of the respondents thought that their knowledge stood on the same level and 3% didn't know how to answer. A preceding study has showed that one of the positive outcomes of applying combination studies is that a balanced program would upgrade the ICT skills and knowledge which can be successfully used by the students in their future practice (Motteram, 2006).

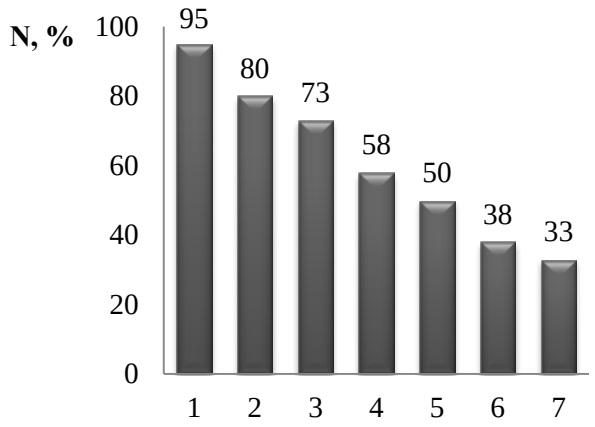

Figure 4. ICT skills acquired in handicraft biased e-learning:
N- the number of respondents,
1- e-study environment management; 2- information search, assessment and analysis; 3 – compiling of presentations; 4- file management; 5- text processing and calculation; 6- specialised programme management; 7- ICT management.

Students had the possibility to choose a model for learning practical-oriented subjects from the following list: 1) enhanced classroom learning with the elements of e-learning; 2) supportive method, where the study process is mainly face-to-face but the course's web environment is used between face-to-face sessions for sharing study materials, homework submission etc.; 3) blended learning, where the study process is mainly online and approximately 25% of the course content includes face-to-face practical training or seminars; 4) online learning, where face-to-face meetings take place at the beginning and end of the course and the interim study is carried out in e-learning environment. On the average, 77.5% of the respondents preferred supportive method as the most suitable one for practical-oriented studies, this was followed by enhanced classroom learning (47.5%), blended learning (37.5%) and online learning (17.5%). The following figure (Figure 5) shows model preferences in learning handicrafts separately for the full-time and distance learning students.

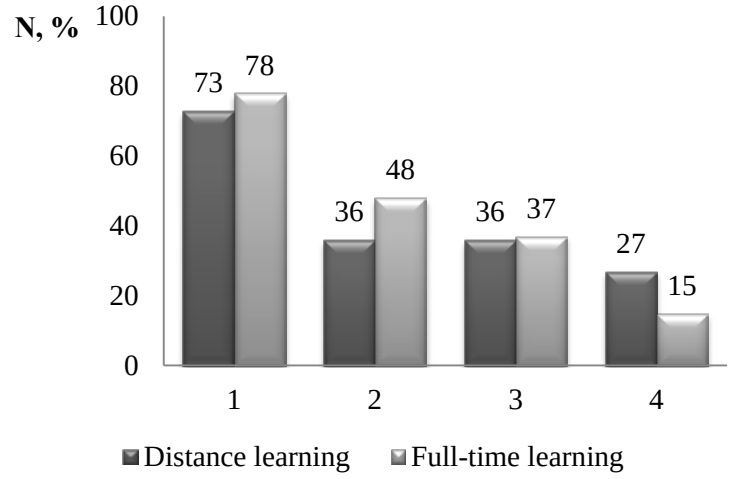

Figure 5. Preferences of models in learning handicrafts:
N- the number of respondents,
1-supportive method; 2-enhanced classroom learning; 3-blended learning; 4-online learning.

Generalising the outcomes of the survey it can be said that full-time students tend to prefer face-to-face learning, whereas distance learners are more willing to use online study options. The given outcomes are clearly depending on the student's independence, motivation and the opportunity to attend studies daily. It can be told that the era is confronted with the "culture" of adult learners, who have been through the school system with the teacher playing the role of 'sage on the stage' and the students absorbing the knowledge (Heinze, Procter, 2004).

Students were requested for the overall readiness for transition to fully online studies. Although 40.5% of the respondents were ready for this, though not in all subjects, the majority confirmed themselves not to be ready and 7.5% did not know what to answer. On the basis of acquired data the abovementioned conclusions were verified, showing that face-to-face classes have a significant role in practical-oriented study field and e-learning has more or less a supportive function.

On the questions about the advantages and disadvantages of e-learning, based on previous experience in practical-oriented subjects, the students had an option to answer openly. The analysis revealed the following advantages of e-learning:

- supports face-to-face studies and achievement of study outcomes;
- study materials are constantly available;
- current information is available;
- the opportunity of independent learning (repetition, embedding, controlling);
- study process is flexible (irrespective of time and place);
- saves time and material resources.

In addition, a few more comments from the students: „If questions arise it is easier to find materials from the e-learning environment and the possibility to get acquainted with the materials prior to contact lessons makes them more efficient"; „ If e-materials contain a lot of illustrations etc., in case of a missed lesson there is an opportunity to study the content via e-learning materials, or when you cannot observe the lecturer's instructions in a class there is always the possibility to repeat, control or embed the material later. These materials will stay with me for lifetime and I can check the needed information anytime"; „A good opportunity to plan your actions, a faster and easier way to perform tasks".

The main disadvantage of e-learning in practical-oriented subjects is the lack of direct contact and cooperation with the instructor. The lack of interaction is indeed considered as a weak point in e-learning handicraft (Kaukinen, Collanus, 2005). There is a need for collaborative learning, support when required, and direct feedback. Respondents also valued discussions, debating, following the development of the ideas of fellow students and the synergy of cooperation, which would be different and not so direct in e-study environment. At the same time, 67.5% of the respondents assessed the feedback from the instructors of passed e-courses as good or sufficient. The reason for this might be determined by the sufficiency of contact learning as well as direct or online feedback during these courses. One third of the respondents stated that communication between students and instructor increased due to e-study. Students as future teachers consider it relevant to see how and by what methods do the lecturers pass on practical skills. The lecturers' role in the study process was considered as important or very important by 75% of the respondents. The user-friendly character of e-courses was also pointed out. To avoid problems the course should be well structured, contain all necessary information and thorough study instructions. The relevancy of study materials is determined by their high quality, optimal quantity and volume, otherwise they might not be sufficient for independent learning or understanding the material would be difficult and it would take more time to study. If questions do not get fast answers, students will become less motivated. The quality of study materials is one of the major problems in practical-oriented studies. Besides, compiling of them is an extremely labour-intensive process. One of the weaknesses of e-learning is a greater need for self-discipline and motivation. 73% of the respondents were motivated by their interest towards the subject and 69% by the deadlines. Thus, in addition to an interesting learning content certain deadlines are also very relevant in e-studies (Kaukkinen, Collanus, 2005). Among hindering factors technical problems related to the study environment, file management and ICT skills were mentioned.

Conclusions

- In teaching practical-oriented subjects the most appropriate teaching method is supportive method. The proportion of online studies could be greater for distance learners.
- An important keyword is the quality of study materials. To support a student in achieving study outcomes, the content of an e-course in web environment has to be well-structured, equipped with necessary information, deadlines and high-quality study materials, the quantity

and volume of which have to be optimal. In Handicraft studies the representative equipment, detailed work instructions, and tutorial videos are of particular importance.

- Integrating technological equipment into specialised e-learning allows students to improve their ICT skills. One can use various informative channels to enhance collaboration and contact.
- e-Course is a process which develops in cooperation between a lecturer and a student. The structure of a course should give an opportunity for a student to choose, proceeding from one's previous knowledge and individual learning style, the best balance between face-to-face and e-learning in order to achieve study results. At the same time, the contact with the tutor has to be maintained and the quality of learning has to be guaranteed.

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DIALOGUE AS WAY TO SUSTAINABLE EDUCATION IN PRESENT SOCIETY

Vilnis Purēns Mg.hist.
Riga Teacher Training and Educational Management Academy, Latvia
vilnis@raka.lv

Abstract. In his research the author analyses use of dialogue in education. He highlights the new situation in teaching, when official (formal) education faces with informal education from different IT media sources and rich flow of information overburdens teachers and students. In the introductory part the author analyses the key features of the new situation and gives a theoretical overview of the use of dialogue in education. The author concludes, that in Latvia the formation of two educational spaces (official and personal) can be observed more visible. In the description of research the author presents a survey of teachers and his researches of student learning activities. Aim of the study was to examine teachers and students openness to dialogue. The author concludes, that teachers and students are ready for dialogue, but it interferes with the traditions and education policy. Teachers' problem is, that they are perceived as implementers of defined educational policy. They have no rights to regulate the content of education in accordance with student demand. The main problem of students is their failure to make the request. Students do not know how to solve their educational problems.

Keywords: dialogue, media environment, history teaching.

Introduction

Modern society enjoys a flow of information, which is created by information technologies. The information is widely available and people can learn without a professional mediation, which for centuries was given by educators of different levels. Consequently the functions of educator are changing significantly. He or she is no more the provider of information but guide. The changes apply to students too. From the information recipients they become creators of their knowledge space. Comparison of the situation we can summarize in the following tables (Tables 1, 2).

Table 1

Tasks of teacher

Provider of information	Guide
To pose educational tasks.	To listen orders of students.
To present information.	To present options.
To encourage memorizing of presented information.	To encourage creation of personal solution of the problem.
To evaluate the level, in which the presented information is accepted by students (in the theory and praxis).	To evaluate students' satisfaction with results and inform about their potency in future.

Table 2

Tasks of students

Recipient of the information	Knowledge space creator
To accept educational tasks.	To nominate order.
To accept information.	To evaluate options.
To memorize information.	To create personal solution of the problem.
To convince, that the information is acquired (in the theory and praxis).	Rate himself (herself) and anticipate his (her) possible future

The new situation creates a conflict with tradition. Since the emergence of the general public education all educational systems are designed as part of national policy. The customer of education is the state. All personal orders of students were limited by the frames of school autonomy. Previous years, when the flow of information was govern by teacher, students and parents were relying on the state and the choice of the teacher. A teacher's monopoly of information is lost today. In the new situation the state order must more and more coexist with the personal order of the students. Sometimes personal is more significant, because it is more close to public opinion and more active in daily relations. If state order accepts personal, educational activities can flourish, if not- education becomes a formal public duty and loses its role in society.

The construction of personal information space is contradictory. It involves a wide range of personal traits and forms how personality selects and organizes his or her knowledge. As form of organization personality needs some axis of knowledge based on understanding of the basic concepts. Such axis could be made in cooperation with teacher as representative of common social experience and student. As main trait the student needs his or her own confidence in his plans, purposes and values.

The information technologies have far outpaced the public's readiness to accept them. Many teachers have only recently noticed, that the students have come to school with some background knowledge. This enables us to observe the main problems of the modern student, if he, without a prior knowledge, had to recover the new information. The main problems are the following:

- mistakes when the basic concepts are not understood correctly;
- difficulties with selection of information, because lack of experience, how to develop criterions;
- mismatch of school programs and interests of students.

Teachers have difficulties with the fact, that each student gets these problems in a different level. One of the most effective methods to detect this level and to help the students is teaching in dialogue.

Methodology

The idea of dialogue as teaching method dates back to ancient Greece. It is frequently rooted to the Socratic dialogues. Contemporary understanding of dialogue is based on modern philosophy- Mikhail Bakhtin's (1895- 1975) postulated human need of creating meanings in a dialogic way with other people (Bakhtin, 1981), Martin Buber's (1878- 1965) dialogical existence theory of human beings (Būbers, 2010), Jürgen Habermas'es (b. 1929) theory of communicative action (Habermas, 1984) etc.

One of the first contemporary educators, who started discussions about dialogical learning, was Brazilian Paulo Freire (1921- 1997). His teachings were based on political discussions about freedom in education. In his famous work "Pedagogy of the oppressed" (Freire, 1970) he speaks about usual education as "banking education". The "banking education" creates "adaptive" and "manageable" beings who can serve the interests of oppressors, but the real knowledge emerges only through invention and re- invention, through restless, impatient inquiry with the world and with the each other (Freire 1970, 72, 73). Instead of banking education Freire promotes dialogue and problem- posing education.

German educator Rainer Winkel (b. 1943.) is sure, that present-day school contains many antinomies-contradictions without solution (Winkel, 1986). In such situation pupils are not tended to accept authorities, but their own experience is not sufficient. Our teaching process is more broken and all pedagogical theories made before are not useful. The only way to succeed is critical- communicative didactics (Winkel, 1986, 83).

British educator Robin Alexander has many arguments about dialogical teaching too (Alexander, 2008). They are communicative (talk as human principal mean of communication), social (talk builds relationship), cultural (creation of individual and collective identities), neuroscientific (language builds connections in the brain), psychological (language as mean of development), pedagogical (more success in teaching) and political (dialogue as base for modern democracy) (Alexander, 2004, 37).

Spanish sociologist Jose Ramon Flecha (b. 1952) pointed out principles for dialogical learning: egalitarian dialogue (based on the validity of reasoning persons), cultural rationality (each person may

demonstrate his or her ability in different environments), transformation (it transforms people's relationship to their environment), instrumental dimension (it deals with gaining all instrumental knowledge and skills considered necessary), meaning creation (it generates common meaning and purposes), solidarity (no one is neutral), equality of difference (all diversity must be accepted) (Flecha, 2000).

Some steps towards dialogic teaching have been taken by Jeļena Jermolājeva in Latvia. She developed a theory of dialogical personality. This is a person, who (1) recognises relationship with world and persons around him, (2) is tended to answer in dialogic situations, (3) have a high activity, (4) have a high level or reflection abilities and rational thinking (Ермолаева, 1997, 57).

There are three main ways to manage a dialogical educational process. We can speak about dialogues (1) teacher ↔ learner, (2) learner ↔ learner and (3) learner ↔ source of information.

So, what are the advantages of educational dialogue?

- Personalization of teaching and learning. The dialogue enables the student to participate in his or her educational development. Education becomes his personal activity. He or she is free to adjust its content. At the same time he or she is responsible for the consequences of his or her choice. The teacher can identify skills, abilities and aims of the student. He can find out the best ways to cooperate.
- Sustainable teaching and learning. Dialogue is a permanent creational action. Negotiation creates and recreates. So each time, when teacher and student are in dialogue, actual conceptions are present. Therefore sustainability is ensured.

At the same time not all educational institutions are ready for dialogue. From educational policy dialogue requires autonomy of school in a large scale. Dialogue requires openness to dialogue from teacher. For students it's a problem to aware of their needs, to formulate actual questions and orders. It might not be a big problem for communities with traditions how parents and students collaborate with the school. The problems are in the countries, where the school has been closely linked to the government.

Latvian educational system is affected by totalitarian legacy, where school autonomy was incredible. All educational orders were given by state. In our situation dialogue could be a problem. At the same time information technologies are booming in our country too.

Researchers from Riga Teacher Training and Educational Management Academy Ausma Špona and Dmitrjs Igoņins found out, that majority of pupils in Riga are sure, that the most interesting and personally important source of information for them is internet. The second place is given to friends, third- to parents. Books are on the place 4, teachers- on the place 8, but school textbooks- only on the place 9 (Špona, Igoņins, 2011, 19). At the same time only from school majority of young people are tended to receive a good knowledge (51.18 %), cultural background (18.30%) and assistance for development (47.58 %) (Špona, Igoņins, 2011, 25).

Latvian is characterized by the fact, that the school digitalisation is not substantially increased. In 2004 20% of students in Latvia were using network (Internet) in the educational establishments, but in 2011 only 15% of students in Latvia were using Internet in the educational establishments (Iedzīvotāju interneta..., 2012). This creates a situation, when pupils accepted IT channels as more private and education is divided into two fields. The one is formal education formed in school, the second- informal and private education from informational technologies. So, for Latvia dialogue in education is essential. It can help to connect the personal and the "formal" educational spaces.

The main intention of the author was to investigate the possibility of dialogue in Latvian elementary schools during history education. The study recruited four primary student groups. Students participated in the pedagogical experiments, where a variety of dialogue-enhancing methods were used. The results were evaluated by observing students' activities and through surveys. To find out the opinion of teachers the surveys of history teachers were conducted.

Researching student involvement in the learning process, attention has been focused on their ability to evaluate and understand the significance of the proposed curriculum in the development of their

personalities. The main focus of teacher survey was on teachers' openness to dialogue and willingness to interact with students.

Two of selected student groups were from the capital, one- in a large rural town, one- in rural area. This experiment was attended by around 70 students (some students changed the school during the experiment). 208 history teachers proportionately represented elementary schools from all Latvian regions and cities. Their work experience was between 3 and 15 years.

Results and discussion

One of the most important indicators of teachers' attitude to dialogue is the ability to trust the student. In authoritarian approach the teacher is controller of the students' work, because the student is the object of teacher's action. Humanitarian and dialogue pedagogy encourages teachers to take an advisory position. The survey revealed, that 33% of respondents indicated, that they still consider themselves as controllers of students' work. If the teacher continuously would not control the students, they would not learn. 42% of respondents stated, that periodic monitoring is necessary. Students generally learn independently while the teacher helps them not to lose orientation and it serves to maintain discipline in school. 23% see themselves in an advisory role and only 2% said that students are able to learn without control.

The dialogue is based on the student and teacher collaboration. It is important, that both sides address the challenges equally active or student can take a greatest deal, because learning deals with his interests. 6% of teachers believe that students are using a variety of tricks to achieve that the task will be actually done by the teacher. 43% believe that students want just a sample and would repeat only certain manipulations to achieve easy results. 47% of teachers, however, consider that students need only a hint and not ready models. 4% say they students want to act themselves and avoid the interference of the teacher.

For dialogue it is important, that both parties feel sufficiently independent in their judgments. An interesting picture emerges, when we are trying to find out the extent to which teachers are observed efforts of students to act independently.

Only 1% of respondents stated, that they do not notice students desire to be independent. 31% believe that this willingness depends on teacher. The teacher must ask independent work. The majority (66%) of teachers believe, that the key of independent work is interest. If students are interested in something, they will definitely act independently. Responses and comments by teachers reveal some scepticism, pointing out that students' interests are likely not related to the schoolwork.

The fact, that learning is closely linked to the understanding of students' interests, indicates the teachers' answers about learning difficulties of students. 14 % believe that the main problem is overload of study programs. 21 % notes the domestic problems. 19% are sure, that students have difficulties to read and work with information. It could be a problem of contemporary digital era, when short texts and large share of visual information inhibits human capacity to perceive more homogeneous flow of information. The dominant (45%) refer to a lack of motivation. Most teachers indicate that students do not see the value of knowledge, because they do not know how they will use it.

We can divide survey answers into three groups. The first group of responses indicates that the teacher highly valued authority and control. The second group of responses indicates, that teacher allows episodic display of control and authority. The answers of third group shows that the teacher is sure, that students are acting more independently, while the fourth group confirms teacher's efforts avoid control if it is possible. If we try to group the answers in this way, we can get the following picture (Table 3).

Table 3

Levels of authority

Levels	Number of teachers who have a majority answers for this level	Number of teachers who do not have the answers, which indicates this level	Number of teachers who have 1 - 2 replies for this level
1. Teacher highly valued the authority and control.	15 % (31)	21 % (43)	21% (43)
2. Teacher allows episodic display of control and authority.	35 % (72)	10 % (20)	46 % (95)
3. Teacher is sure, that students are acting more independently	67 % (139)	5 % (11)	26 % (54)
4. Teacher avoids control if it is possible.	6 % (12)	39 % (81)	53 % (110)

Data in the table confirm fluctuating scene. Teachers are willing to reduce their authority pressure, but are cautious. The caution perhaps is promoted by bureaucratic restrictions, because school autonomy in Latvian is still conditional.

Latvian school environment is also affected by the age structure of teachers. The majority of Latvian teachers is in the age group of 40 - 50 and represents legacy of totalitarian Soviet education (Key data.., 123).

We can look in future of learning dialogue more optimistic, if we get acquainted with teachers' beliefs about what is their role in student lives. Only 15% of teachers believe that students perceive them as an unavoidable necessity. 22% - see themselves as savers in times of difficulty, 46% - in a consultative role, and 17% - as friends.

Historical education has a diverse role in the lives of students. History offers a social experience, which cannot be obtained in a single lifetime. Many countries have tried to politicize history learning. Most of them were totalitarian states. Politicization as social pressure often leads to students (especially teenagers) a negative contra- action. However, history can offer a life of wisdom too, that motivate students to learn it. To teach history in a dialogue means to help to students to find such points of contact between his personality and the human heritage, which he himself seems to be crucial.

Latvian students are not accustomed to the dialogue. They never had the opportunity to participate in development of their personal curriculum. Such options were not included in experiment too, because it would reduce the opportunities for students to take the state tests. Unfortunately, the results of tests are still important in the future life of students. The experiments were aimed at determining the potential student's ability to find topics of interest in history and to develop own plan for their history education.

The most significant results were received from four experiments. In the first experiment, students were encouraged to ask questions to the teacher and explain why is important for them to get the answers to these questions. The questions were asked in written form. In the next lesson students received answers from teacher and were asked to rate them with the school grade. Students had to explain their assessments.

The questions of students we can divide into four groups. The formal questions were asked without a significant reason- because students were encouraged to ask. It should be noted, that initially such questions there were numerous, because students were not sure, that the teachers will really prepare answers to them. The second group were questions with purpose to explain some information. They were related to students’ abilities to perceive some kind of information. The third group of questions were related to the students’ curiosity. Curiosity is based on student's personal involvement in

formation of their knowledge. So it is these questions indicate the student's openness to a learning dialogue.

The question sessions were repeated several times during the experiment. The experiment showed the following changes in shares of different types of questions (Table 4).

Table 4

Shares of different types of questions

Question session	Formal questions	Explaining questions	Curiosity questions
Session 1	85%	13%	2%
Session 2	73%	16 %	11%
Session 3	70 %	12 %	18 %

Exponential growth of the share of the curiosity questions shows, that students have realized that asking questions is the way in which they can build up their own personal learning space.

Similar results were reported by the evaluation of teachers' responses. The assessments can be divided into three groups. The first group of assessments is based on the authority of the teacher. Students are giving the highest rating to answer just because it is answer of the teacher. The second group of assessments is based on a critical evaluation. The students are trying to find, to what extent teacher had satisfied their curiosity and solved the problem. The third group of assessments is amorphous. The students have no understanding of why they have chosen one or the other score.

For dialogue the critical assessments is a set of core. The experiment showed the following changes in shares of different types of assessments (Table 5).

Table 5

Shares of different types of assessments

Question session	Based on the authority of the teacher	Critical evaluation	Amorphous evaluation
Session 1	89%	3%	8%
Session 2	82%	7%	11%
Session 3	79 %	9 %	12 %

The share of assessment based on the critical evaluation is not large, but it is growing.

The second experiment was related to the students' ability to work in groups and create a group dialogue. The traditional problem of group work is lack of mutual confidence. Students trust teachers, because they are confident about his or her knowledge. Students do not trust the other students, because they know, that they all are in the same level of knowledge. As solution of situation students are looking for a leader. It is usually a student who demonstrates the best ability in a particular area. He or she traditionally performs most of the group work.

In order to involve more students in dialogue, the pair work was used at the beginning of the experiment. Students evaluated and complemented each other's work.

The most important indicator, which shows ability of a students group to develop a dialogue is participation rate. In pair work it is presented by growing of corrections and supplements which students made in each other's work (Table 6).

Table 6

The average number of corrections and supplements

Pair work session	Average number of corrections and supplements
Session 1	2- 3
Session 2	3- 7
Session 3	6- 8

The essential indicator of the group work is how students evaluate their own participation. Researcher proposed rating scale with three levels. As the highest level was considered one in which the student has put forward a proposal to the group and defended it. Mid-level student has just put forward proposals, but they have not been substantiated. The lowest level of activity is when the student believes, that he was able only to accepted proposals of others (Table 7).

Table 7

Share of students representing different levels of activity in the group work

Group work session	Highest	Middle	Lowest
Session 1	3%	34%	63%
Session 2	4%	27%	69%
Session 3	7 %	33 %	60 %

Group work evaluation shows, that individual student leadership is not that easy to change. However, the changes in middle level suggests, that increase in activity can be achieved.

In the third experiment students could identify their historical empathy skills. Students were asked to slip into different characters from past in particular historical situations. The experiment was repeated several times. Student work analysis showed that such type of task is interesting for students, but not easy. Students lack knowledge and life experience for appropriate empathy. At the same time they were not indifferent to the personalities. There were three groups of description details, which were present in the students' compositions. As formal details we can evaluate those, which come directly from any source of information. As personal we can evaluate those details, where emotions of personality appear. The third group would be the neutral details, whose nature it is difficult to determine. After examination of 207 students' compositions, the following results were got (Table 8).

Table 8

Results of empathy task

Tasks	Share of formal details	Share of personal details	Share of neutral details
1	71%	10 %	19 %
2	73%	12 %	15 %
3	69%	14 %	17%

The results of experiment show a slow but steady increase in the share of personal details. This confirms that the students' ability to pick up information in dialogical way improves.

During the final experiment students evaluated their skills in history and created the plan to improve them. Admittedly, this part of this experiment gave the weakest performance. Answers we can divide in too optimistic, too pessimistic and real. Too optimistic answers were based on the belief of exam

success. These were specific for about 37% of the students. 42 % of the students were too pessimistic. According to them, all the exam tasks will bring insurmountable difficulties. Optimists and pessimists actually did not take the exam as a sort unsolved challenge. According to them decision will be made by someone else and everything will depend on his grace.

Realistic (remaining 21%) made a reasonable analysis of their skills. They were aware of the objectives of their actions. However, they rarely were able to plan their activities in order to improve performance. Only 10% of students were able to identify specific actions to be taken in the future. Most were convinced, that problems had to be solved by teacher in any case.

These results confirm the weak side of our education system. It does not show to the students how to tackle their learning problems.

Conclusions

The modern dialogical learning traditions in Latvia are in its infancy. The first study, however, suggests several conclusions.

- With the development of the media environment and flow of information a dialogue approach is becoming increasingly more important. It forced to be recognized by both- teachers and students.
- In the new situation the essential questions are autonomy of the schools and opportunities for students to develop their own order in education. These issues should become the cornerstone of education policy
- Latvian teachers are cautious, but, however, willing to admit more students self-sufficiency.
- The biggest problem of the Latvian students is formulation of their goals in education. Students do not know how to solve their learning problems. On the one hand there's to blame for the lack of experience. On the other- lack of traditions in education system to teach students to learn.

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ASSESSING COMPUTER SKILLS IN SCIENTIFIC RESEARCH ON THE BASIS OF EXPERT VIEWS

Oskars Rasnačs[1] Mg.math., **Māris Vītiņs**[2] Dr. sc. comp.
Riga Stradinsh University, Latvia [1]; University of Latvia, Latvia [2]
rz15r01@inbox.lv[1]; maris.vitins@lu.lv [2]

Abstract: ECDL certification is a well-known and widely accepted system to test and confirm the computer skills of rank-and-file users of information and communications technologies. Another good approach in this area is a system of professional certification of knowledge and skills. Between these two processes, however, are specific computer skills which are focused on a specific area of activity such as scientific research. This is an area in which much remains to be done in terms of evaluating knowledge and skills. The authors propose that the evaluation of computer skills in the area of scientific research can best be developed on the basis of the views of experts. The authors have surveyed experts, and they are proposing on the basis of their views one possible solution in terms of how computer skills in the field of scientific research can be assessed.

Keywords: informatics, statistics, integration

Introduction

Research done by the authors at the Rīga Stradiņš University (RSU) has shown that many students and practicing specialists require consultations on the use of information and communications technologies (ICT) when preparing scientific research projects (SRP). The authors have found that the greatest difficulties relate to the selection of the most appropriate data processing methods. This is an important issue in Latvia and throughout the world. There are recommendations on the preparation of scientific research papers, and the world's universities have centres at which consultations are available on the subject of data processing issues (Dravnieks 2011; Statistical Consulting Centre, University of Melbourne, 2012).

The authors suspect that students who are engaged in SRP have poor knowledge and skills in the area of ICT. It must be noted that the authors are unaware of any system aimed at the evaluation of ICT knowledge, skills and talents in the preparation of SRPs anywhere in the world – ones that could be used to evaluate whether the knowledge of a specific student is poor, at a medium level or good.

The authors have found in their own research that:

- Informatics courses at various universities involve different kinds of educational content;
- Instructors have diverse views about the importance of subjects and courses in terms what is more or less significant;
- Instructors evaluate the knowledge, skills and talents of students in different ways, emphasising different types of examinations – tests, independent work, etc.;
- Instructors have different views about how the jobs are to be done.

The aim of research to know which factors influence the results of defending the diploma thesis and informatics studies use after graduation of university in everyday work.

The authors would argue that it is necessary for universities and instructors to reach agreement on these issues so as to come up with an approach and implementation that are as unified as possible. They particularly emphasise the need for views which relate to harmonisation of techniques related to the handling of traditional assignments. Perhaps it would be useful to correlate and compare the various techniques to see which ones are more or less appropriate for each specific assignment.

There are several internationally recognised instruments in evaluating ICT knowledge, skills and talents. Examples include the ECDL (ECDL, 2012), Microsoft (Microsoft Certification Exams, 2012), as well as Brainbench (Brainbench, 2012). In scientific research, however, there are other areas of knowledge, skills and talents that are of importance. One example includes work with the SPSS statistical programme (SPSS software, 2012). The authors believe that it is also important to assess ICT knowledge, skills and talents in the preparation of SRPs. The point is that it is of importance for

each student to develop high-quality SRPs during his or her studies and certainly before graduation. ICT knowledge, skills and talents in the preparation of SRPs can also be of importance in the labour market.

Of importance in Latvia and throughout the world is the evaluation of the quality of studies on the basis of many different criteria. Examples include the evaluation of such programmes as part of accreditation processes (Dosbergs, 2011, 64-69). One of the most important criteria here is the level of knowledge, skills and talents among students. Computerised assessment systems are quite often used for this purpose today. The authors have made use of them, as well (Prokofjeva, 2007, 8). This paper focuses on how to assess ICT knowledge, skills and talents in the preparation of SPRs, making use of computerised systems to evaluate knowledge in this area. The authors would be pleased if the evaluation of ICT knowledge, skills and talents in the preparation of SPRs would also correlate with evaluations of those who defend their diploma theses.

Methodology

In the spring of 2010, the authors surveyed 10 instructors at Latvian universities about techniques used to address traditional assignments. They proposed several techniques from their own experience, and each instructor could choose one or more of those techniques, as well as to propose others. With a few exceptions, the techniques are determined by the characteristic set of words in English and a brief description. Before a student can quickly find the necessary information, it is important to learn those words in English irrespective of the language of education and the link among the various terms (Rasnacs, Vitins, 2011).

The surveyed specialists came from the area of health care at the Rīga Stradiņš University (n=50) and the area of medical physics and engineering at the Rīga Technical University (n=10). All 60 of the respondents were graduates who at one time took informatics courses and are working in their profession. This means that the respondents have written and defended their diploma theses, and they have at least a bit of work experience in their profession. They also have a sense of the extent to which informatics studies are of use in their area of specialisation. They were asked about the following issues:

- the university from which they were graduated;
- their area of specialisation;
- the year they were graduated;
- their grades in informatics and statistics courses (rounding off the average grade if several courses of study were taken);
- their evaluation of their knowledge, skills and talents in the area of informatics and statistics;
- their evaluation of how they defended their thesis;
- their evaluation of the thesis itself;
- the extent to which informatics and statistics courses helped them to defend the thesis;
- the extent to which the courses have been of use in everyday work;
- the extent to which the results of defending the thesis were influenced by courses other than those in informatics and statistics;
- the extent to which the results of defending the thesis were influenced by individual consultations related to informatics and statistics while writing the thesis.

Information about the grades which respondents earned allowed the authors to evaluate the percentage of the recommendations offered by experts in terms of evaluation criteria or the extent to which the respondents used correct techniques to deal with issues in examinations and tests according to (Riga Stradiņš University Instructions on Studies I, 2011).

The number of evaluation criteria depended on the content of the training process. There were several possibilities:

- a study of ECDL issues (except MS Access) and only of the fundamentals of statistics in the MS Excel environment;
- a study of ECDL issues (except MS Access), with fundamental studies of statistics and simultaneous analysis of one or two elements in the MS Excel and SPSS environments;

- a study of ECDL issues (except MS Access), with fundamental studies of statistics and simultaneous analysis of one, two or three elements in the MS Excel and SPSS environments;
- a study of ECDL issues, including MS Access, and only of the fundamentals of statistics in the MS Excel environment.

The evaluation criteria are divided up into groups. Not all of them can be utilised in independent work, because the drafting of the criteria was based on student data collected at the beginning of the course. All of the criteria, however, must be discussed in testing procedures of various kinds. Until the first semester of the 2009/2010 educational year, inclusive, there were three characteristic sets of works to choose a data processing method, with one of them being appropriate for the existing situation. An example:

Normally distributed body masses of the same patients in January and July:
- ANOVA;
- independent – Samples t-test;
- paired – Samples t-test.

The tests were taken in a testing environment (Caune, 2002).

During the second semester of the aforementioned educational year, the authors offered a test with tasks involving multiple correct answers. There is one example.

Which methods do you recommend for use in the comparison of cholesterol levels in the bloodstream by gender?
- independent sample Student t-test;
- Mann-Whitney test;
- Kolmogorov-Smirnov tests;
- ANOVA;
- Friedman test;
- none of the above.

The tests were taken in a testing environment (Caune, 2002; Quizegg, 2012). By 2011, the authors had led a group to draft an information system in the MS Access environment with characteristic sets of words in English which had to be learned and with respect to which knowledge was tested (Rasnačs, Vītiņš, 2011a). The information system was also used for tests in which several correct answers could be selected. Colleagues declared this testing system to be the most appropriate one, with an average rating of 4.4 on a 5-point scale (Раснач, Витиньш, 2011; Rasnacs, Vitins, 2012).

During the first semester of the 2010/2011 educational year, one group of students was given tasks in which there were six possible answers, including "none of the above." There were several correct answers, but students were required to choose the one which they considered to be most appropriate. The other group of students was given tests involving an evaluation of the truth of claims on a 5-point scale. The claims contained a task and a technique to address it, and students needed to accept or reject the relevant assumption on the 5-point scale when it came to the selected solution:
- 1 – very inadequate;
- 2 – inadequate;
- 3 – difficult to judge adequacy;
- 4 – very adequate;
- 5 – extremely adequate.

It was important in these tests to compare those solution techniques which were more or less adequate. The claims were based on the results of a survey of experts. The solution which received the most votes from experts was seen as the most adequate one, and it was given a rating of 5 points. The next most popular one got 4 points, the next one got 3 points, etc. The students were unaware of the expert vote. If the student chose evaluated a claim that coincided with the point level or differed from it by one point, then the answer was seen as correct. If the experts rated a claim with 3 points, the student could choose 2, 3 or 4 points. These tests were taken in a testing environment (VisiDati.lv, 2012).

Most independent papers were written in the MS Word environment, but the authors instructed some groups to write the papers in the Internet environment (Rasnacs, Vitins, 2012: VisiDati.lv, 2012).

The criteria to evaluate independent work and tests and the solution techniques recommended by the experts were divided up into groups in accordance with the content of education:

- seeking information on the Internet about an area of specialisation;
- preparing research data for processing;
- processing of research data;
- issues related to the design of scientific research work;
- questions about the selection of parametric or non-parametric statistics;
- publication of research results;
- presentation of research results;
- preparation of a database.

Results and discussion

Let us now look at the responses given by experts to several questions, first looking at the issue of seeking information on the Internet about an area of specialisation. There are various types of health care courses which relate to this issue and to evidence-based medicine. The authors were interested in whether the students had learned about Boolean operators and their usage principles. Table 1 show to one assignment. In it, n = the number of experts who voted for the relevant solution, v = the evaluation on a 5-point scale in relation to the vote. The same designations are used in other tables which speak to the solutions that were recommended by experts (Tables 1-6).

Table 1

Seeking information on the Internet about an area of specialisation

Question/Possible answers	n	v
The first word will be designated with the letter A, and the second will be designated with the letter B. Which keywords must be chosen to find information on the Internet which includes the words “lymphatic” and “system”?		
“A B”	4	4
A B	3	4
A and B	2	3
A+B	1	2

The test related to evaluating claims in a 5-point system can be prepared in this way: To find information on the Internet which contains the words “lymphatic” and “system,” the keywords “lymphatic system” must be chosen. Experts rated this claim at a level of 4 points, which meant that students could choose 3, 4 or 5 points.

The issue of preparing research data for processing with a single task is shown in the table 2.

Table 2

Preparation of research data for processing (solutions recommended by experts)

Question/Possible answers	n	v
Which principles for writing up questionnaires seem adequate to you?		
If the questionnaires are anonymous (in most cases), then they must be numbered so that each respondent has a different number or ID	4	5
Make as much use as possible of answers designated by numbers	4	5
Number the questions on the questionnaire	4	5
Try to make as much use as possible of the sizes of relationship scales and, if that is not possible, make use of scales of order	2	4

Next, let’s look at questions about the design of scientific research work with a single task used as an example. Not all of the questions in this group could be evaluated as solutions, e.g., looking at those

which speak to numbers such as how many columns there can be in a scale of tables. Most experts recommend between 3 and 15 columns. If a student designs such a graph or indicates the desirable number of columns, then the answer is seen as correct. If the student designs a graph or gives an answer related to a different number of columns such as 25, then the answer is seen as incorrect.

When dealing with the issue of selecting parametric or non-parametric statistics, of importance is the measure scale which is utilised. Also significant are the criteria which can be used to ensure that in quantitative terms, the scale is in line with normal distribution. The experts were asked whether they would accept a calculation of an average arithmetic nominal for scale data with more than two possible answers (e.g., eye colour – 1 gray, 2 blue, 3 green, 4 brown, 5 other) or ordered scales of data (e.g., education – 1 elementary, 2 secondary, 3 higher). That means that they want to see these as quantitative data. Four of the 10 experts accepted this. The experience of the authors shows that if students consider ordered scale data to be quantitative, then that will be a lesser mistake than nominal scale data with more than two possible answers. An even greater mistake would be to see nominal scale data with two possible and dichotomous data (e.g., drinking black coffee – 0 no, 1 yes) to be quantitative. In practice, the opposite question is also important – can quantitative data be processed similarly to qualitative data? The answer is seen in the issue of how many columns there should be – between 3 and 15. If quantitative data have up to 15 different values, inclusive, then they can be processed similarly to qualitative data by presenting separate values in the graph of columns. If there are a larger number of values, then they must be grouped into a histogram. Most experts recommend that data volumes up to 15 be seen as a small cohort. Taking these expert views and their own experience into account, the authors propose that measure scales be arranged in the following order in terms of the number of possible answers:

1 – a dichotomous scale → 2 - nominal scale data with more than two possible answers → 3 – an ordered scaled → 4 quantitative data with 3 to 15 values, inclusive → 5 quantitative data with more than 15 different values.

If the ordered scale or quantitative data have two possible answers, then they can be processed similarly to dichotomous data. If there are more than 15 possible answers in relation to nominal or ordered scales of data, then such data must be grouped before they are processed. The authors suggest that if the selection of a data type made by a student coincides with the expert choice, then that is to be rated at a level of 5 points. If the student moves in either direction in the ordered scale measure scales by one point, then the rating is 4 points. If the departure is by 2 points, then the rating is 3 points, etc. If dichotomous data are processed similarly to quantitative data with more than 15 different values, then this solution would be rated as extremely inadequate (1 point).

The experts recommend that a normal distribution of quantitative data with more than 15 different values be based on the following criteria (Table 3):

Table 3

Questions about the selection of parametric or non-parametric data (solutions recommended by experts)

Question/Possible answers	n	v
What normal distribution examination criteria do you recommend when deciding on whether to use parametric or non-parametric statistics?		
Histograms	3	5
The assumption that quantities which are affected by many accidental factors are in line with normal distribution	2	4
Visual evaluation of a graph of points and axes	2	4
The standard mean error	2	4
The Kolmogorov-Smirnov test	2	4
Small samples	1	3
Standard errors of skewing and kurtosis	1	3

The issue of publishing research results with one task is shown in the table 4.

Table 4

Publication of research results (solutions recommended by experts)

Question/Possible answers	n	v
Which method should be used for references in the MS Word environment (the number of the source) in terms of a bibliography if there are no specific requirements in this regard?		
Cross-referencing	4	5
Writing the number of the source in square parentheses []	4	5
www.apa.org	1	4

The presentation of research results with a single task is shown in the table 5:

Table 5

Presentation of research results (solutions recommended by experts)

Question/Possible answers	n	v
Which fonts in the MS PowerPoint environment do your recommend for headlines?		
Arial	6	5
Fonts in accordance with the design	2	4
Garamond	1	5

If the use of MS Access is studied during an informatics course, then evaluation criteria related to the design of databases is important (Table 6).

Table 6

Design of databases (solutions recommended by experts)

Question/Possible answers	n	v
Which method in the MS access environment should be used to establish the link 1 – endlessness?		
Relationships	3	5
Design of forms, requests or reviews from two tables	1	4

In order to make it easier for students to decide on which statistical indicators should be calculated and which tests of hypotheses and examinations of linkages should be used, the authors designed summary tables on the basis of textbooks (Teibe, Berķis, 2001; Teibe, 2007). The number of situations changed over the course of time, with 31 situations existing most recently.

The authors also calculated the Pearson correlation coefficients r and, accordingly, p – values between questions on the questionnaire. The results of defending the diploma thesis statistically significant linear dependent from:

- the grades in informatics and statistics courses ($r=0.288$, $p=0.018$, $n=56$);
- the self - evaluations of defending the diploma thesis ($r=0.619$, $p<0.001$, $n=60$).

The evaluations of informatics studies use after graduation of university in everyday work statistically significant linear dependent from:

- the self - evaluations of knowledge, skills and talents in the area of informatics and statistics ($r=0.495$, $p<0.001$, $n=60$);
- the influence of informatics and statistics courses to results of defending the diploma thesis ($r=0.604$, $p<0.001$, $n=60$);
- the influence of individual consultations related to informatics and statistics while writing the thesis ($r=0.344$, $p=0.009$, $n=56$).

Many scientific papers have been written about ways of evaluating the knowledge, skills and talents of students via the use of computerised examination systems. Each author emphasizes different parameters such as adaptive methods which are adapted to each student's level of knowledge, skills and talents (Prokofjeva, 2007, 15). The likelihood of a correct answer which leads to a grade of 3

(poor) must be higher than the likelihood of guessing the correct answer (Jevsjukova, 2007, 27; Поддубный А. В., Панина И. К., Ащепкова Л. Я, 2003). These authors believe that these are not the most important criteria for informatics courses. Given that each instructor has a different view about how tasks are to be handled, it is important to ensure that once the informatics course is completed, students have their own views about the relevant solutions. It is desirable for those views to coincide well enough with the views of the experts.

One dissertation (Prokofjeva, 2007, 8) speaks to computerised systems in educational processes. Among such systems, she mentions testing programmes and systems to examine knowledge. These authors would recommend the addition of testing systems related to MS Office software, because it is used for independent work that is presented in an electronic format.

Conclusions

- The survey of instructors showed that their views about solutions related to tasks in information courses are different, but some commonly held ideas can be identified in terms of solution techniques which are chosen by a majority of experts;
- The results of defending the diploma thesis influence grades in informatics and statistics courses but not influence evaluations of informatics studies use after graduation of university in everyday work; we can't claim that if grow grades in informatics and statistics courses then grow evaluations of informatics studies use after graduation of university in everyday work;
- if grow grades in informatics and statistics courses and self – evaluations of defending the diploma thesis then grow the results of defending the diploma thesis;
- if grow self – evaluations of knowledge, skills and talents in the area of informatics and statistics then grows its importance in the labour market;
- if grows influence of knowledge, skills and talents in the area of informatics and statistics to results of defending the diploma thesis then grows its importance in the labour market;
- if grows importance of the individual consultations related to informatics and statistics while writing the thesis then grows importance of knowledge, skills and talents in the area of informatics and statistics in the labour market;
- The survey focused on students who received comparatively good grades in informatics courses – from 6 to 10, inclusive. It is, therefore, necessary to survey a greater number of students with different views so as to come up with a judgment of the extent to which there is good compatibility with the views of experts.

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FOOD ALLOWANCE OPTIMIZATION MODEL

Viesturs Rozenbergs[1] Dr.sc.ing., Mg.ed.; **Imants Skrupskis**[1] Dr.habil.sc.ing.
Dace Skrupska[1] Mg.paed.; **Ērika Rozenberga**[2]
Latvia University of Agriculture[1], NGO „Visikuma muizas fonds"[2]
roze@llu.lv[1]; erika.rozenberga@gmail.com[2]

Abstract: Possibility of food allowance optimization by using MS Solver tool is analysed in the research. The model is developed by balancing 22 food products and 30 constraints – 8 nutrients and 22 minimum amounts of food products. The new method differs from the applications of linear programming described in the special literature on nutrition science not only with increased nutritional constraints, but also the minimum amount of every product is introduced as constraints, which does not essentially change costs, but provide quality, for example, for tea or coffee it is recommended to define not $x \geq 0$, but $x \geq 3$. By modifying minimum amounts of tea, coffee, sugar, spices, it is possible to obtain up to 70% economy from the initial rate. Application of the model is approbated in the computer class during practical classes for students of nutrition science.

Keywords: Constraint functions, allowance, constraint, linear programming, nutrients, food costs.

Introduction

One of the most essential components of the state food safety is individual food safety status of every household (Wood, 2006), provided by both self-supply (Perpar, Udovč, 2010) and market relations, determined by money link between a city and country, which is provided by available amount of money means (Abdullah, Kalim, 2012). In case for food purchase there is not sufficient amount of money means for critical number of population, there is great possibility of strikes, as well as anarchy and global migration of people (Falvey, 2011). While there is limited amount of money means, it is important to get nutrients with minimum means, which are not lower than scientifically based rates. On the other hand, according to the Bologna process in the higher education, it is defined, that from the quality of educational material we should move to the quality of training results (Perez-Montoro, Tammaro, 2012), at the same time also from the quantity of academic knowledge and different regularities, conceptually we should move to the approach – know-how, which is accumulated during hundreds of years, as well as during the recent decades and which directly is concerned with economic activity nowadays,- better deliver to students, in order to obtain the level of user skills as soon and efficient as possible. The aim of the article is to check optimization feasibility of food allowance formed by food products with cost function tending to reach the minimum, using Solver supplement of Microsoft Office Excel (Bezerra, Fraga, Dias, 2013) with certain constraints, which are the minimum set amount of food products and nutrients.

Methodology

Application of linear programming for compiling a menu is considered. After survey of literature data an Excel file was developed with calculated daily allowance, nutrition rates were taken as a pattern (LR MK not.nr.1022 no 19.12.2006). For compiling food allowance the set problem is formulated as a minimum of cost purpose functions with certain constraints, which are formed by nutrients of the food products in the allowance, rates of which must not be lower than fixed in the legislation or scientific literature. The study is based on the researches in applied mathematics of Nobel Prize winner in economics George Stigler and B. Dantzig, which are based on Milton Friedman`s school of economics (Dantzig, 1990), and researches of French nutrition scientist Nicole Darmon (Darmon, 2009). The model developed by the authors of this publication is used in the classes of nutrition studies for bachelor and master students of catering and hotel management bachelor study programme and food science master students during the study years 2011/2012 and 2012/2013.

Results and discussion

According to the data in literature, food allowance optimization model was developed, formed by 22 food products and 8 nutrients – totally 30 constraints. According to the given rates shown in the Figure

1, in the cells C7:C28 daily allowance costs are calculated in the cell C3. Average prices of food products per kilo are given in the cells D7:D28, but in the cells D7:28 the price is recalculated for 100 g, because the particular nutritional values in the cells F7:F28 are given per 100 g of the food product (Figure 1).

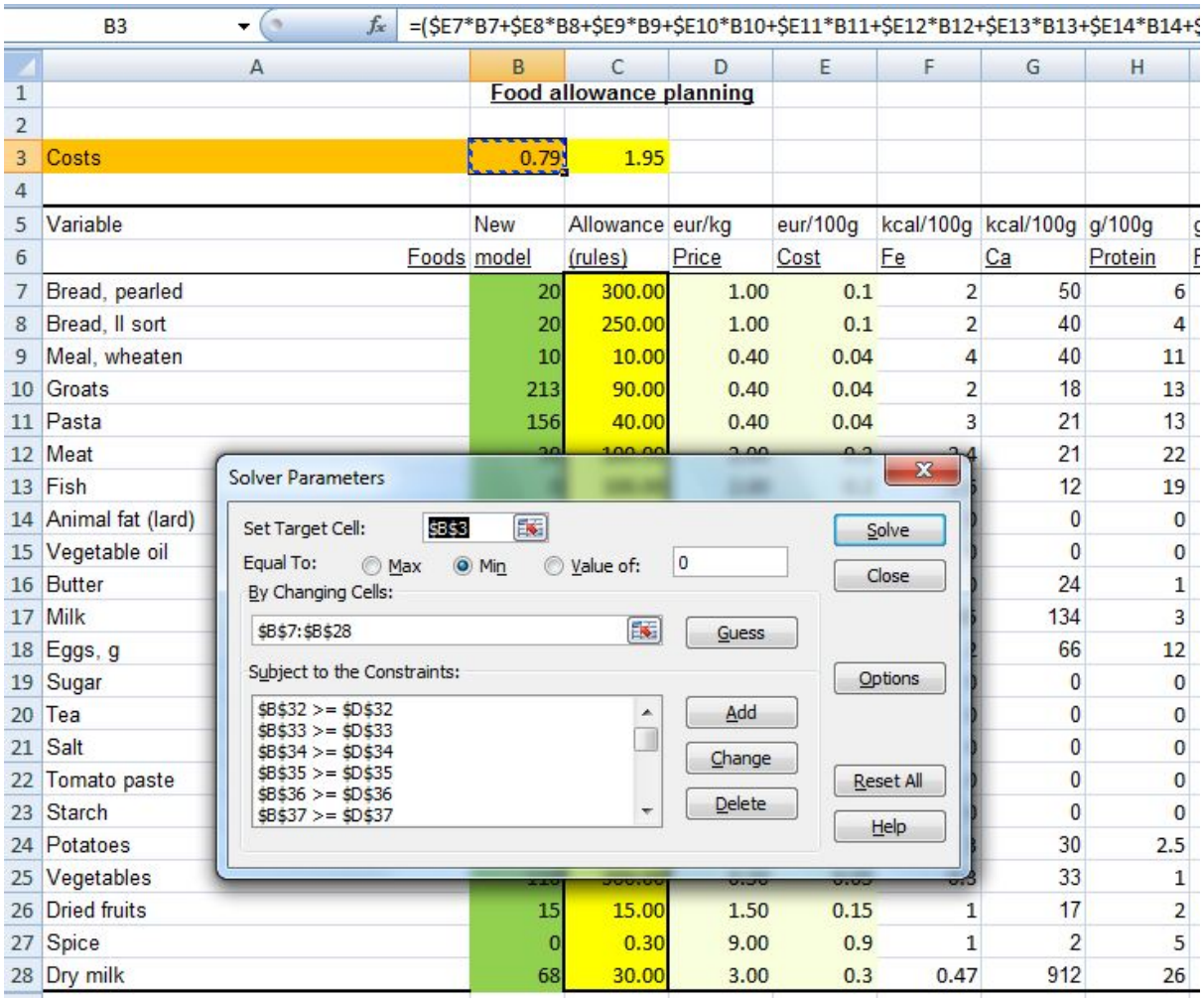

Figure 1. Solver parameters: target cell, changing cells.

The cell B3 is indicated in the window of Solver parameters *Set target cells*, where is searched the minimum of linear programming function at changeable cells B7:B28, indicated in the window By Changing cells. Subject to the Constraints are indicated all constraints $B32 > = $D32 ... $B60 > = $D60 according to the linear programming tasks.

Minimize $Z=Ax_1+Bx_2+Cx_3+Dx_4+Ex_5+Fx_6+Gx_7+Hx_8+Ix_9+Jx_{10}+Kx_{11}+Lx_{12}+Mx_{13}+Nx_{14}+Ox_{15}+Px_{16}$ $Qx_{17}+Rx_{18}+Sx_{19}+Tx_{20}+Ux_{21}+Vx_{22}$, where A...V – food price and $x_1...x_{22}$ – quantity of food products, by the following constraints:

1) $2x1+2x2+4x3+2x4+3x5+2,4x6+1,6x7+0,1x8+0,1x9+0,1x10+0,1x11+2x12+0,1x13+0,1x14+$ $0,1x15+ 0,1x16+0,1x17+3x18+0,1x19+1x20+1x21+0,5x22 \geq 15$;
2) $2)50x_1+40x_2+40x_3+18x_4+21x_5+21x_6+12x_7+0,1x_8+0,1x_9+24x_{10}+134x_{11}+66x_{12}+0,1x_{13}+0,1x_{14}+$ $0,1x_{15}+0,1x_{16}+0,1x_{17}+30x_{18}+33x_{19}+17x_{20}+2x_{21}+912x_{22} \geq 800$;
3) $6x_1+4x_2+11x_3+13x_4+13x_5+22x_6+19x_7+0,1x_8+0,1x_9+1x_{10}+3x_{11}+12x_{12}+0,1x_{13}+0,1x_{14}+0,1x_{15}+0,$ $1x_{16}+0,1x_{17}+2.5x_{18}+1x_{19}+2x_{20}+5x_{21}+26x_{22} \geq 80$;
4) $1x_1+1x_2+2x_3+3x_4+2x_5+15x_6+14x_7+100x_8+100x_9+82x_{10}+3x_{11}+10x_{12}+0,1x_{13}+0,1x_{14}+0,1x_{15}+$ $0,1x_{16}+0,1x_{17}+0,1x_{18}+0,2x_{19}+0,2x_{20}+0,2x_{21}+26x_{22} \geq 80$;
5) $44x_1+48x_2+75x_3+71x_4+74x_5+1x_6+1x_7+0,1x_8+0,1x_9+0,1x_{10}+4x_{11}+2x_{12}+100x_{13}+20x_{14}+0,1x_{15}+$ $25x_{16}+25x_{17}+12,5x_{18}+8x_{19}+10x_{20}+10x_{21}+38x_{22} \geq 360$;

6) $209x_1+217x_2+362x_3+363x_4+366x_5+227x_6+206x_7+900x_8+900x_9+742x_{10}+55x_{11}+146x_{12}+400x_{13}+80x_{14}+0,4x_{15}+100x_{16}+300x_{17}+60,9x_{18}+37,8x_{19}+49,8x_{20}+61,8x_{21}+490x_{22}\geq 2480$;

7) $2x_1+2x_2+0,1x_3+0,1x_4+0,1x_5+100x_6+160x_7+0,1x_8+0,1x_9+2500x_{10}+180x_{11}+410x_{12}+0,1x_{13}+0,1x_{14}+0,1x_{15}+0,1x_{16}+0,1x_{17}+0,1x_{18}+2000x_{19}+1500x_{20}+10x_{21}+930x_{22}\geq 12$;

8) $0,1x_1+0,1x_2+0,1x_3+0,1x_4+0,1x_5+0,1x_6+0,1x_7+0,1x_8+0,1x_9+0,1x_{10}+6x_{11}+2x_{12}+0,1x_{13}+2x_{14}+0,1x_{15}+6x_{16}+1x_{17}+15x_{18}+20x_{19}+20x_{20}+1x_{21}+0,1x_{22}\geq 70$;

9) $x_1\geq 20$; 14) $x_6\geq 10$; 19) $x_{11}\geq 20$; 24) $x_{16}\geq 3$; 29) $x_{21}\geq 1$;

10) $x_2\geq 20$; 15) $x_7\geq 10$; 20) $x_{12}\geq 0,5$; 25) $x_{17}\geq 1$; 30) $x_{22}\geq 5$.

11) $x_3\geq 10$; 16) $x_8\geq 5$ 21) $x_{13}\geq 20$; 26) $x_{18}\geq 100$,

12 $x_4\geq 10$; 17) $x_9\geq 5$; 22) $x_{14}\geq 2$; 27) $x_{19}\geq 100$;

13) $x_5\geq 10$; 18) $x_{10}\geq 5$; 23) $x_{15}\geq 5$; 28) $x_{20}\geq 5$;

where coefficients at variables – amount of a nutrient per 100 g of the food product, for example, the coefficient in the equation 8 at x_{18} indicates that for the calculations assumed average content of vitamin C in potatoes is 15 mg/100, which is assumed so low taking into consideration the average amount per year by seasons and average losses of thermal treatment; constraints 1-8 in the equation indicate the minimum nutrition rates of nutrients, for example, in the equation eight the minimum rate of vitamin C is 70 mg per day; in its turn in the equation 9–22 (Figure 2, cell D32:D38) the minimum rate of certain food products are indicated, for example, in the equation 22 the set constraint for tea is ≥2 g per day, but theoretically all the equations 9-10 could have set constraint x≥0, which is mathematically correct, but is not practically applicable.

	A	B	C	D	E
24	Potatoes	110	400.00	0.50	0.05
25	Vegetables	110	300.00	0.50	0.05
26	Dried fruits	15	15.00	1.50	0.15
27	Spice	0	0.30	9.00	0.9
28	Dry milk	68	30.00	3.00	0.3
32	Iron	15	31.74	15	
33	Calcium	800	1147.22	800	
34	Proteins	80	115.94	80	320
35	Fat	80	116.03	80	720
36	Carbohydrates	360	483.65	360	1440
37	Kcal	2480	3442.62	2480	2480
38	Vit. A	3595	7729.13	12	12.90323
39	Bread, pearled	20	20	0	29.03226
40	Bread, II sort	20	20	0	58.06452
41	Meal, wheaten	10	10	0	100
42	Groats	213	20	0	
59	Spice	0	0.3	0	
60	Dry milk	68	0	0	
61	Tea of coffee minimum:		5		
62					

- Figure 2. Parameters for constraints.

The initial food allowance price is 1.95 euro, but after optimization it has decreased up to 0.79 (Figure 1, cell B3). Mutually replaced food products will be different in every country – it is determined by the price level of different food products. This model shows that bread has a very high added value, which possibly could be replaced by flour. If the constraints $x_1\geq 20$ and $x_1\geq 20$ would be fixed theoretically allowable $x_1\geq 0$ and $x_1\geq 0$, then bread would be generally excluded. If such situation is allowable in relation to bread, then it is not allowable concerning tea or coffee, what mathematically, as being the

most expensive products, are first excluded, but which in terms of money make only a very little part of the daily food allowance and which have a big influence on quality of the menu by meeting the customer`s requirements.

Also during the last year several articles have been published, where application of linear programming for compiling a menu is described. Following the recent tendencies, in one of the publications (Macdiarmid, 2012) is analysed possibility to limit greenhouse gas emissions by consuming in nutrition more those food products, for growing of which climate changing gasses are not emitted. In its turn German researchers (Jati, Vadivel, Nohr, Biesalski, 2012) have applied linear programming by using POM-QM for Windows – computer programme, which is planned to be used for quantity methods, operation management and science management. In this research improved Indonesian people`s daily menu is analysed and modelled with the aim to avoid micronutrient deficiency. Researches on nutrition balance also touch upon economic issues. The essence of the issue – how to reduce resources and increase amount of nutrients to be consumed (Gingule B., Rucins M., Rozenbergs, 2011). The group of researchers working on development of ready-to-eat therapeutical food (Dibari, 2012), have used linear programming for optimum balance of soya, sorgo, maize, vegetable oil and sugar in ready food, in order to obtain optimum mixture of basic nutrients. Although food pyramid formally is already withdrawn since 2005 (Rozenbergs, 2008), still food pyramid is being applied for developing food models by applying linear programming, for example, a group of researchers at Public Health school, Washington University, has developed a model for balancing sugar and fat, in order to reach the aims set by the food pyramid (Mailot, Drewnowski, 2011).

Issues of this research field are surveyed not only in the scientific journals of nutrition science, but also in the journals of information technology and mathematic sciences. The researchers group from Sri Lanka (Piyaratne, 2012) has worked out a model for optimum fattening of broilers by using, as mentioned in the publication, even 1800 constraints. In its turn mathematicians from Malaysia (Mamat, 2012) have tried to compile a menu by applying irregular (fuzzy) linear programming approach.

The greatest research on this field is carried out by the French scientist of nutrition science Nikola Darmon, who has several publications with many co-authors (Darmon, 2009; Rambelson, 2008; Darmon, 2008; Ferguson, Darmon, Briend, Premachandra, 2004; Briend, Ferguson, Darmon, 2001), from which as the first research could be considered the one published already in 1999 (Darmon, 1999).

From the aspect of pedagogical and particularly IT training, the essential issues are when, what and in what context to teach (Straesser, 2007), especially it concerns elementary school, where is huge students` potential for training mathematical intellect, although in reality it is not often developed, but on the grounds of good intentions, it is even hindered (Espinoza, Barbe, Galvez, 2011). Quite many publications are devoted to training Excel, one of the latest is on Excel training and use in operation guidance (He, 2012).

There are certain things in different education programmes and study subjects, which have to be studied – it could be either to learn how to solve a quadratic equation or to know exactly which year a certain war has started and which year it has finished. Nutrition studies are very wide and often scientifically and socially contradictory; moreover, the acquired knowledge has to be taken into consideration in daily life. Frequently it is pointed out, that nutrition studies, which could be both, a component of health education and housekeeping study subjects, are not to be taught theoretically, but by the teacher`s pattern, besides, the headmaster should have good figure without overweight, non-smoker, etc., who could deliver the positive message through himself to formal and non-formal school leaders (Schee, 2009).

There is still an open question about what has to be taught at the university, for example, should students of economics be taught mathematics at all (Mallik, Basu, 2009). Certainly, if the study programme is developed so, that after finishing the study programme the student receives the qualification of economist, then mathematics is necessary and on a very high level with certain specialization; if the student is granted a degree of social sciences in economics, then they could do also without mathematics.

In the context of nutrition studies the question is – what does a pupil of the 7th form needs to acquire in the nutrition studies, and specifically, calculating with paper and pencil, calculator or Excel worksheet? Not only bureaucratically formulating, that by finishing elementary school the pupil „is able to compile and considers healthy menu" (LR MK not.nr. 1027 no 19.12.2006). Yes, by finishing elementary school the pupil „is able to compile and consider healthy menu". Then why the resources of state and private persons have to be wasted by studying for several years? Several professions are defined in the profession classificatory, which correspond with the skill „to compile (or plan?) a menu" – nutrition specialists, specialists in nutrition science, specialists in art, culture and cookery. Besides, there is no demand for the profession „cook" to compile a menu (LR MK not.nr. 461 no 18.05.2010). What does it mean „to compile a healthy menu"? It can be only calculation of basic nutrients and energy value; it can also be calculation of definite number of vitamins and minerals. Several authors attach a special importance even to particular microelements, especially – iodine (Bobiniene, Gudavičiute, Miškiniene, 2010), content of which is defined as a quality indicator of meat (Čepuliene, Bobiniene, Sirvydis, Gudavičiute, Miškiniene, Kepaliene, 2008), with this also as a provision of balanced food allowance.

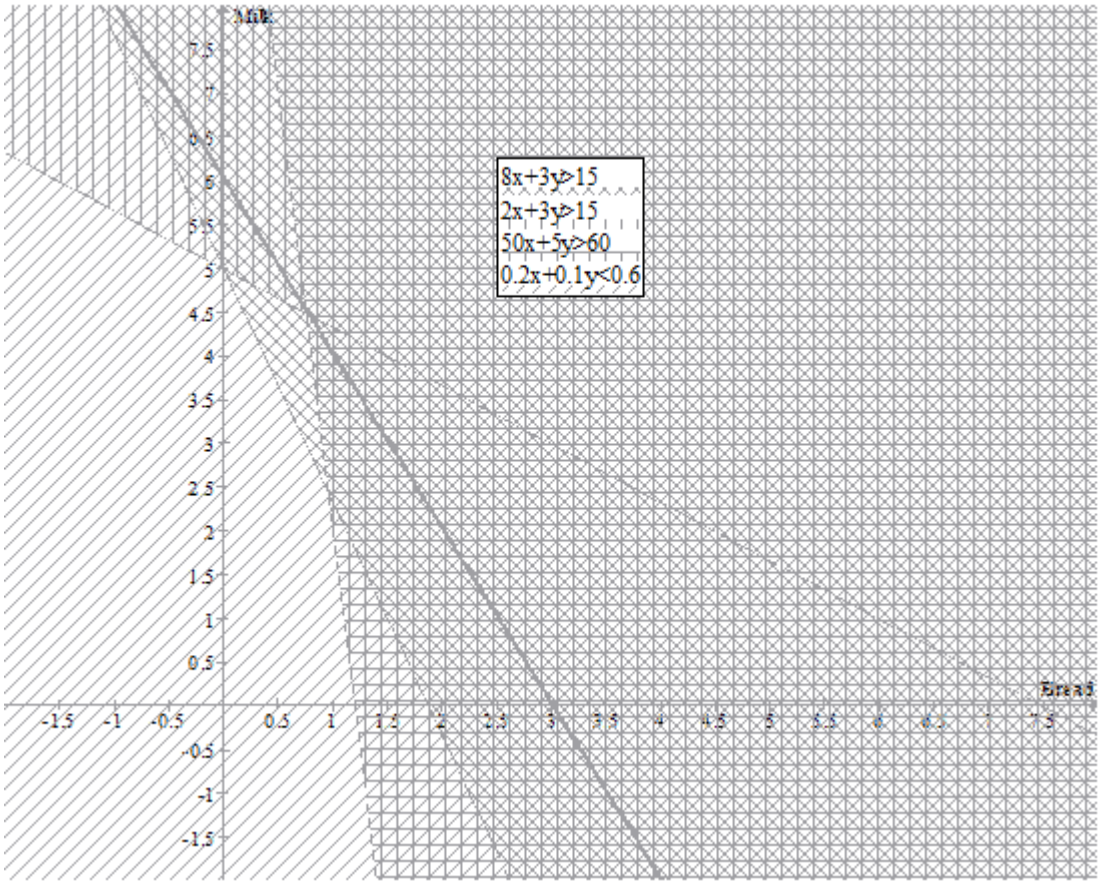

Figure 3. Two-dimension graphical model for nutrient balance.

When approbating the developed model during classes of nutrition studies, it was concluded, that it is possible to consider and analyse the particular model during one academic hour. For development of a new model several hours would be necessary, which are not planned in the curricula, but for an individual work there is no necessary preliminary knowledge in mathematics and computing. On the other hand, such sample could be used at school to acquire deeper knowledge in particular subjects, for example, developing two-dimension or three-dimension model, which can be shown also graphically, for example,

1) two-dimension model for bread with milk– $x1>0$, $x2>0$, $8x1+3x2\geq15$, $3x1+3x2\geq15$, $50x1+5x2\geq60$ (Figure 3);
2) three-dimension model for bread with butter and milk $x1>0$, $x2>0$, $x3>0$; $4x1+0{,}85x2+4x3\geq15$, $4x1+82x2+4x3\geq15$, $50x1+0{,}01x2+5x2\geq60$.

The figures illustrate mathematical essence of constraints. The two-dimension model, although simple, graphically shows the essence of constraints. It would be recommended to start explanation of menu optimization model to students with the graphical model. The three-dimension model is less graphical and more complicated to be formed, what does not justify the applied effort for the development of this graphical model. This approach is approbated during training classes.

Conclusions

1. With the linear programming methods by using MS Solver tool, it is possible to balance the daily allowance, consisting of 22 food products.
2. For practical calculations as constraints have to be set not only nutrients within the range of their daily rate and food products, each more than a null, but certain minimum amounts have to be used for food product constraints, that could meet the customer`s requirements.
3. The developed model is approbated during the classes of nutrition studies and it is concluded, that during one academic hour it is possible to consider and analyse the particular model.
4. The model developed by authors can be used not only for optimization of food allowance, but also in the study process of nutrition classes.

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MATHEMATICS EDUCATION PROCESS IMPROVEMENT THROUGH COOPERATION: EXPERIENCE OF LATVIA UNIVERSITY OF AGRICULTURE

Anna Vintere Mg.Math.
Latvia University of Agriculture, Latvia
Anna.Vintere@llu.lv

Abstract: It is known that mobility, lifelong learning, use of the new technological tools and flexible approach to knowledge acquisition requires to search for new methods and to promote the studies program coherence in the European education area. Therefore the development of local and international cooperation in mathematics is topical issue for the Latvia University of Agriculture. To improve the teaching quality by means of exchanging teachers' experience, to learn about the problems and methods used to solve them in the neighbouring countries, during last three years two cooperation networks were developed: Cross-border network for adapting mathematical competences in the socio-economic development (Latvia University of Agriculture and Siauliai University) and Baltic network in agrometrics (Latvia University of Agriculture, Estonian University of Life Science and Aleksandras Stulginskis University). This article summarizes the past experience of the international cooperation in mathematics generalizing benefits, evaluates the progress achieved at Latvia University of Agriculture and impact on mathematics education development as well as outlines the future directions and possible forms of the cooperation.

Keywords: cooperation, mathematical competence, mathematics courses, teaching conception.

Introduction

Mathematics is a study subject that specialists of all sectors need as a base. That's why mathematics is being taught in schools, colleges, professional schools and universities. EU directives state that mathematics is one of 8 main competences that need to be developed in lifelong education. The "mathematical competence" is based on the ability to solve problems in everyday context, and places emphasis on aspects of the process and the habit of using models of thinking (logical and spatial) and presentation (formulas, constructs, graphs, charts, etc.). It consists in the ability to identify structures and connections, repetitions and systematic nature. Moreover, a positive attitude in mathematics is based on the respect of truth and willingness to look for reasons and that way assess their validity (Key competences…, 2006). Regardless there are several problems and considerations that influence the development of those competences of mathematics that is demanded by the labour market and rapid changes in social, technological, educational and other environments.

The most pressing problem is the low motivation of students to study mathematics. Both a few education researches and experience shows that the level of students' preparedness and knowledge is getting lower. This is leading to low students' motivation to achieve good study results. And that is leading to lower mathematics study quality. One must acknowledge that universities use traditional teaching/study methods that are not sufficient to fulfil requirements of labour market and requirements of society, developing competences of mathematics that is needed for new technology age. Lecturer–oriented lectures with clear and definite content and static information is not an effective way of carrying knowledge any longer. Mathematics is often represented as a long succession of facts to be memorised and reproduced. Moreover, the results of several researches show that mathematics that is taught in universities is not related to its usage in practical life situations. Several documents that analyse socio-economic development in local and regional level show that there is a lack of sufficient transfer of knowledge and technology to enterprises (Balciunas, Macaitiene, 2011).

Conditions mentioned before ask for an innovative study process that promotes organized and systematic education making mathematics more practically usable and giving knowledge that could be used easily in the labour market. The solution – different cooperation networks, new initiatives and education products that create new knowledge and methods of mathematics in study programs that contribute to solving problems mentioned before. In accordance with Bologna documents, it is important to improve the mobility of students and teaching staff as well as strengthen the competition

of the European universities in global education market, to promote the European co-operation in higher education, particularly with regards to curricular development, mobility schemes and integrated programs of study, training and research as well as exchange of experience between institutions and countries (Bologna Declaration, 1999). This poses new challenges for mathematics and the studies of its use and outlines the directions for future development in Latvia University of Agriculture (LUA). Therefore in 2009 the Cross-border network for adapting mathematical competences in the socio-economic development was developed in the framework of Latvian-Lithuanian cross-border cooperation program‘s project MATNET creating innovative educational products, new initiatives and strategies. The project’s members are Latvia University of Agriculture and Siauliai University (SU).

Cooperation among the Nordic and Baltic countries in agrometrics (mathematics and statistics in higher agricultural education and in the agriculture sciences) has been going on since 1997 with a view to identify the kind of mathematical education needed, enhance the quality of learning through the exchange of lecturers' experience and review the use of learning methods and mathematical modelling techniques in agriculture. During 2007-2010 it faced such topical questions as its leadership and the financial issues and started to seek for new forms of cooperation. Therefore in 2011 Baltic network in agrometrics was developed in the framework of Nordic Council of Ministers’ program Nordplus with purpose to renewal the cooperation at least among the Baltic National Universities of Agriculture: Latvia University of Agriculture (LUA), Estonian University of Life Science (EMU) and Aleksandras Stulginskis University (ASU, Lithuania).

This article summarizes the past experience of the international cooperation in mathematics generalizing benefits, evaluates the progress achieved as well as outlines the future directions and possible forms of the cooperation.

Methodology

Research methodology used in this article is evaluation of the experience of international cooperation in mathematics in connection with the development of the mathematics study process at the LUA, taking into consideration the author’s reflection, experience and observations.

Cooperation can be implemented at different levels – international and local. Both kinds of the cooperation include the development of the networks, participation in several professional institutions and implementation of the joint projects. Latvian University of Agriculture in collaboration with the Siauliai University, Estonian University of Life Science and Aleksandras Stulginskis University has been developed two cooperation networks and have been implemented joint projects within these networks.

The main objective of the cooperation with SU was to contribute to socio-economic development in preparing high quality competitive specialists for the labour market in the field of mathematics; to proper conditions for border region specialists to develop mathematical skills; to prepare specialists who will be able to apply ICT and integrate mathematic competences for problem solving, data analysis; to raise awareness, competitiveness and qualification for users, beneficiaries and stakeholders as well as to improve the quality and enhance the accessibility of mathematical competencies across border by creating, testing and integrating innovative ICT based educational products.

The purpose of the cooperation with EMU and ASU was to promote a fuller understanding of the role of mathematics and statistics in the agriculture education and its relevance to labour market needs; to achieve common guidelines in agrometrics (mathematics and statistics); to improve the teaching quality by means of exchanging teachers’ experience, to learn about the problems and methods used to solve them in the neighbouring countries; to promote the role of mathematics and statistics in the life-long learning.

As seen, cooperation objectives include all three directions of the mathematics study process: the development of a program, mathematics study process organization and support activities. Thus summarizing the experience of these cooperation in mathematics and taking into consideration the author’s reflection, experience and observations, generalized benefits from cooperation, evaluated the

progress achieved in all three mathematics study process directions as well as outlined the future directions arising out of the current topical issues in mathematics education.

Results and discussion

Assessing the cooperation with SU, EMU and ASU and implemented activities directions several conclusions on cooperation level can be made:

- The cooperation can be implemented through cooperation with other universities and with professional institutions as well;
- The cooperation with universities can be implemented by universities profile or by the level (local, regional, European etc.);
- Both international and local cooperation can be implemented in the study programs directions or particular specialty (e.g., civil engineering etc.);
- At local level - the cooperation between participants of study process: academic staff (mathematics and other subjects teachers, heads of the study programs; deans etc.); labour market (employees, employers); other interested parties (e.g., adult learners, lifelong learning providers).

The main reason for the cooperation of course mathematics education development - at university level as well as in the context of lifelong learning (LLL) where the universities play an important role. Summarizing the attainments within the projects mentioned above, cooperation impact on study process can be generalized following the directions:

- Mathematics curriculum development (learning outcomes, content, volume, methods used);
- Study process organization (usage ICT in studies, methodical materials, measurement of learning outcomes, teaching methods etc.);
- Study support system (teachers training, space for exchange experience, accessibility of mathematical competencies, the motivation of the students, etc.).

Higher education is something more than just formal study programs and curricula. It includes preparation of school students to make them capable enter universities as well as further education of specialists during their careers. The cooperation forms as well as their impact on mathematics education process development generalized in Figure 1.

In order to improve mathematics education process several activities have been implemented during three years cooperation. Most important of them was Internal and External research “Development of mathematical competencies in higher education institutions within socio-economical context”, which was conducted in collaboration with the University of Siauliai. Seeking to identify the needs of the labour market and integration of professional competences of mathematics in border regions, research was carried out on the external demands of the labour market and employers who represent the need of qualified specialists with mathematic knowledge and skills. A questionnaire of this research consists of three parts. More interesting results come from Part 1 “Attitude to the mathematics” (self-assessment of mathematical abilities; conformity of mathematics at higher education school with a student’s needs; mathematics in professional practice and assessment of practical potential of mathematics) (Balciunas, Macaitiene, 2011). Research showed that the mathematics has a high status. It is considered difficult to learn and yet, often without any detailed justification, it has a high value: problem-solving and thinking developing means; tool for describing the real world and revealing human potential (the knowledge and abilities of mathematics, mathematical thinking helped them to achieve more in their life) in working activities (the advantage of mathematics knowledge on the labour market). External research results also showed that the lecturers should explain examples of real life where is used particular teaching substance, to work out more practical content tasks and assignments, according to programme specificity and emphasize the applicability of teaching mathematic subjects in concrete speciality and programme, etc. The external research also marked the field of mathematics which could be arranged in adult further education.

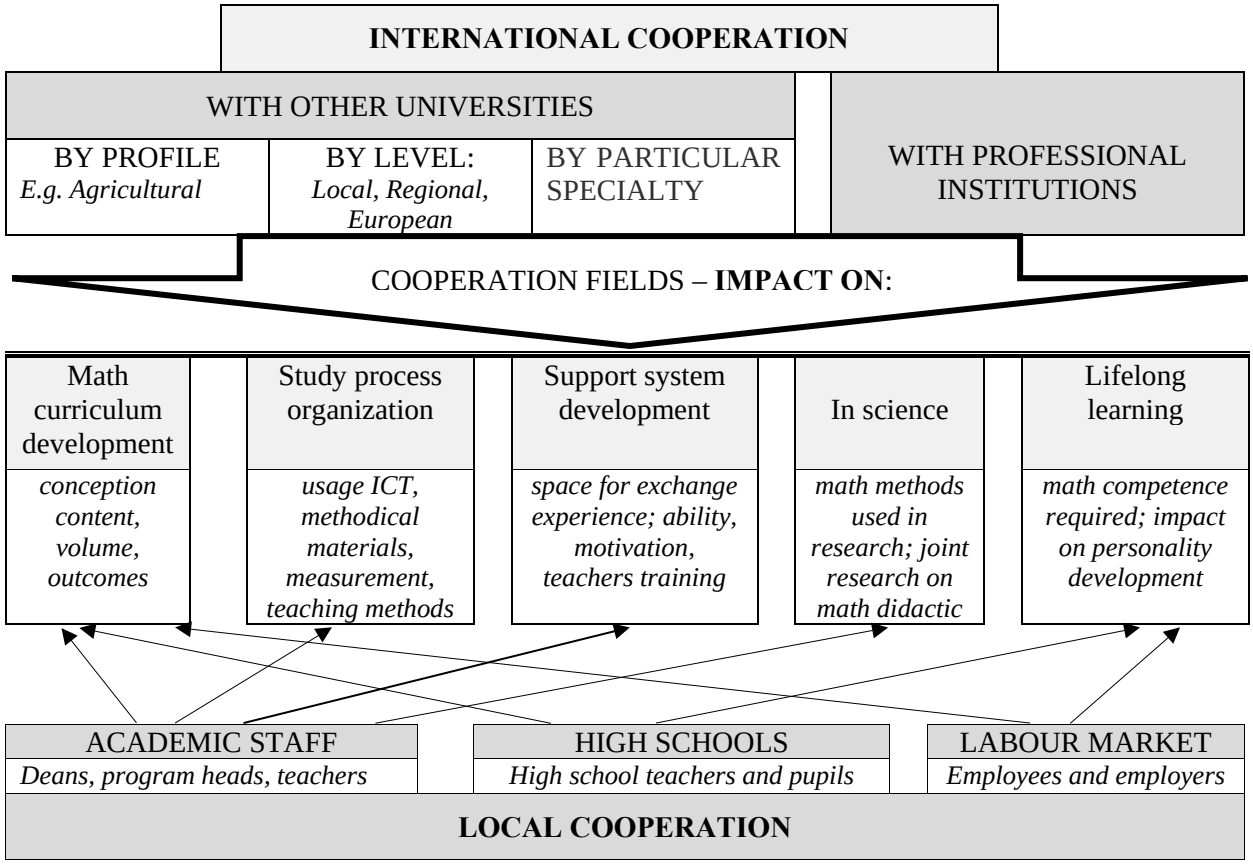

Figure 1. Cooperation forms and their impact on mathematics education process development.

Research on internal evaluation consisted of the analysis of SU and LUA mathematics study programmes and outlined to which extent the existing study programs correspond to the needs of the regional labour market. The main benefits from this research could be divided in three results groups:

- based on research results, recommendations for LUA (for SU as well) study program adjusting were created and consisted of four dimensions: program's outcomes, program's content, study process organization and study materials availability and accessibility to students;
- established methodology for determining the needs of the labour market and methodology for mathematics programs comparison and evaluation;
- created a database that includes an external study - the survey results, as well as summary information on LUA and SU study programs.

Based on these recommendations the aims of 15 LUA mathematics study courses have been revised and defined the outcomes of mathematics study programs. The contents of mathematics divided into three level modules: 1st level referable to the social science programs, 2nd - technological study programs, 3rd - engineering programs. Several courses supplemented by needed topics based on the internal research and on interviews with heads of programs and lecturers of special subjects. Based on SU experience, individual work of students was scheduled for every topic of mathematics. Recommendations for study materials availability and accessibility included a need to implement a common electronic base of methodological materials. Thus the learning materials' repository has been developed in Moodle environment.

To improve the quality and enhance the accessibility of mathematical competencies across border, innovative ICT based educational products have been created, tested and integrated: two open-system for long-term development - homework variants' generator including bank of homework tasks in Moodle and question bank for self-regulation and for tests in Moodle; methodological materials - home works examples and methodical material about the use of MathCad in mathematics. In the framework of this project new learning method was developed – how to use Moodle computerized learning system for self-directed learning practical application of mathematics. By analysing the demographical situation in cross-border region, the possible demand for the higher education in the

near future as well as education as export, was created methodological material in English. Special attention was paid to the practical application of mathematics. The results of external research show what mathematical competence is need to specialists of different fields. The advanced studies are offered to carry out through e-studies as additional courses with the focus only on practical application of mathematics and other themes: linear programming, probability theory and the statistics, numerical methods.

The cooperation within the Baltics network in agrometrics includes the work on common guidelines in mathematics and statistics. Work on common guidelines included evaluation of results of study courses and evaluation of contents and amount of study courses at EMU, ASU and LUA by four directions of study programs: environment, engineering, forestry and social sciences (Vintere, 2012). It could be mentioned that there is a synergy between results achieved in several cooperative networks. For example, the mathematics and statistics courses in LUA, EMU and ASU were evaluated using the methodology for mathematics programs comparison and evaluation established within MATNET.

With increasing number of students who continue training in other European universities in various exchange programs, such comparison becomes essential. Study programme coherence is an important factor in the common European education area.

For example, information on engineering mathematics courses gathered in the Table 1 shows the volume of the mathematics courses - division between theoretical lectures, practical seminars, laboratory works and individual work. Comparing the data it can be concluded:

- content of studies in the specialties of all the universities is similar except that the Lithuanian university mathematics program includes the mathematics practical us; the difference in the amount of studies is defined by time that is used in specific programs to study mathematics;
- the use of ICT in mathematics in practical work allows EMU to save several hours in comparison with LUA and ASU;
- in SU (also in ASU) the students individual work is planned carefully, separated according to which among the number of individual works are assigned.

One of the most important benefits from cooperation is creation the space and opportunity to present oneself and promotion the best practices and valuable examples using different tools. Thereby in the frame of the project MATNET High School Pupil Scientific Mathematic Olympiad and International Student Scientific Mathematic Olympiad was organised to encourage the motivation of the talented pupils and the best students that study mathematics for further carrier in this field and adaptation of knowledge and skills by gathering them together and setting the conditions for sharing scientific and cultural experiences.

The main objective of the network activities was to improve the teaching quality by means of exchanging teachers' experience, to learn about the problems and methods used to solve them in the neighbouring countries. Based on the partners' experience analysis to improve the study process in own university. In the frame of MATNET International conference „Mathematical competence development in higher education institutions" and two seminars-discussions (for university lecturers and high school teachers) were organized.

Baltic networking seminar on agrometrics and three International conferences were organized within the cooperation with EMU and ASU. During these conferences 40 reports were done: About common guidelines (courses content, volume, outcomes etc.) – 10; ICT in teaching and learning mathematics and statistics – 15; Agrometrics teaching methods – 10 and Mathematical and statistical modelling – 5.

The common interests of the mathematics and statistics education in Baltic States Universities were identified during the conferences and seminars. The main discussions were on mathematics competence level among the students and the necessary changes in mathematics study programs, studies programs coherence in the common Baltic education area. Another topic of the discussion was the mathematics and statistics programs relevance to labour market needs in Baltic States - how to prepare specialists who will be able to apply ICT and integrate mathematic competences for problem solving, data analysis; to raise awareness, competitiveness and qualification.

Table 1

Data about engineering courses volume

ENGINEERING	*EMU*			*LUA*				*ASU*[*]			*SU*			
Name of subject/s .... ECTS	*Linear algebra and analytical geometry- 4ECT Mat.An. 1-6ECT Mat.An. 2-6ECT*			*Mate I –5.25 ECT Mate II- 3.75 ECTS Mate III - 5.25 ECTS*				*Mathematics1-7 ECT Mathematics 2 - 6 ECT*			*Mathematics 1-6 ECTS Mathematics 2-6 ECTS Mathematics3-5,25ECTS Applied math–6 ECTS*			
Content	***T***	***P***	***∑***	***T***	***P***	***L***	***∑***	***T***	***P***	***∑***	***T***	***P***	***I***	***∑***[**]
Linear algebra	8	7	15	5	5	3	13	6	6	12	4	6	*10*	10
Vector geometry	4	7		3	3	1					6	8	*14*	
Analytic geometry of plane and space	6	8	15	4	6	2	19	8	8	16	5	6	*8*	25
Sets and functions	2	2		-	-	-								
Limit and continuity	4	3		3	3	1					4	6	*10*	
Derivative of a function of one variable	4	8	23	8	7	2	24	10	10	20	6	10	*16*	26
Indefinite integral	4	8		6	6	3					11	16	*24*	
Definite integral and its applications	2	4	18	6	7	3	31	15	14	29	4	5	*19*	36
Functions in several variables	6	8	14	3	3	1	7	8	8	16	7	12	*18*	19
Multiple and curvilinear integrals	6	14	20	2	2	-	4	-	-	-	7	11	*18*	18
Complex numbers				2	4	1	7	-	-	-	2	2	*6*	4
Differential equations	4	10	14	8	11	4	23	10	10	20	10	16	*28*	26
Numerical and functional series	6	12	18	8	11	3	22	4	4	8	12	14	*34*	26
Functions of complex variable	-	-	-	-	-	-	-	-	-	-	6	6	*18*	12
Laplace transformation and its application	-	-	-	-	-	-	-	-	-	-	16	10	*36*	26
Math practical use - Optimizations methods	-	-	-	-	-	-	-	9	13	22	-	-	-	-

[*]*There are data about Biomass engineering; bet ASU has other program for engineering with 15 ECTS*
[**]*The sum of the theoretical lectures and practical seminars (independent work not included)*

The status of mathematics and teaching at different universities was reviewed. The conception of teaching mathematics was determined based on the analysis made – the role and on purpose of mathematics courses in the agriculture education in mentioned three Baltic agricultural universities as well as in in cross-border universities. For engineering emphasis is on the structure, strictness of mathematics; simplest proofs can be provided, but application in the speciality is only an illustration. The course for environment specialties can be introduced through the tasks of applied nature; only several proofs and groundings are to be provided in order for the students to understand the structure of mathematics. Only conclusions-algorithms of applied nature are provided for forestry and social science specialties. The only difference is for forestry study program – the entire attention should be devoted to the solution of practical problems, but social sciences - to the task solution methods.

The contribution to the study process improvement - the diagnostic tests for the first year students and methodology for the testing and compilation of the results was created with the cooperation with EMU and ASU. These tests had been used for first year students at all partners universities and results discussed. The results revealed that while the students' abilities are becoming worse and worse. Using

these tests for several years can be determined student competence dynamics. Depending on it, the appropriate math course development planning is possible. The other benefit from these tests - basically all students spend only one - two years to acquire the basic course in mathematics. Unfortunately the frequent poor results cause expulsion from the university. From this point of view universities should work on making the mathematics studies more attractive, as well as prevent lack of knowledge caused by insufficient work at school or college. Diagnostic tests provide possibility to identify topics that more problematic for students and has not learned enough at the school or college. For example, ASU students can learn these topics by attending preparatory courses, but the LUA students have the opportunity to improve competence in mathematics through e-courses in Moodle. For its part these courses were created in cooperation with SU with aim to improve the quality and enhance the accessibility of mathematical competencies across border.

Diagnostic tests play an important role in comparison first-year students' mathematics competence among the universities. Of course, the results of the high school graduates in each country are collected and made publicly available, but none of the partner countries do not have information on how these students then are distributed between universities. This problem is crucial in a country where two or more universities offering programs in the same specialty. For example, the situation develops so - in one university the right answers in diagnostic tests have shown 80% of first-year students, the second university - only 35%. This means that the second university should make considerably more effort to both university students would have similar powers, such as additional contact hours, e-learning materials, individual working materials, topics to be acquired only by using mathematical software etc.

Mathematics is becoming a topical issue also in the lifelong learning context. To raise awareness, competitiveness, qualification for users, beneficiaries and stakeholders training courses for small and medium enterprises have been organized within MATNET. During the course lecturers found that adult education methodology is different from the university didactics. This experience was a new for the LUA teaching staff.

Conclusions

Working together teachers from all partner universities have shared research and practical experience on several mathematic education process aspects. LUA experience in cooperation with other Baltic States universities shows that learning about the problems and methods used to solve them in the neighbouring countries and exchanging teachers' experience, motivates to improve the mathematics education process particularly with regards to curricular development and teaching quality. Evaluating the cooperation experience and the progress achieved at Latvia University of Agriculture and its impact on mathematics education development, several conclusions could be made:

- In cooperation with three Baltic States universities was covered all the mathematics education aspects - mathematics curriculum development at university, study process organization, study support system as well as mathematics in the lifelong learning context.
- Progress achieved in collaboration with the SU which have the most significant impact on the development of the study process are: the methodology for determining the needs of the labour market and methodology for mathematics programs comparison and evaluation; recommendation for study programs readjusting; preparatory courses; methodologies for students un high school pupils Scientific Mathematic Olympiads; experience in cooperation with labour market etc.
- The most important attainments in cooperation with EMU and ASU are: mathematics teaching conception; diagnostic tests for first year students; methodology to evaluate the ICT usage in mathematics studies etc.
- By evaluating the experience of the cooperation, one can see the strengths and weaknesses of each partner university. E.g. EMU has knowledge and practical experience in blended learning organization, LUA has experience in usage of e-environment in study process organization. Both mentioned universities have been integrated MatCad in mathematics studies and have knowledge about mathematical software and experience on easiest use for the students. ASU have big experience in mathematical modelling and usage of agrometrics in agricultural

sciences, but LUA – about statistical methods. SU, ASU and LUA have capacious didactical materials. Teaching of mathematics and statistics is in one department at EMU, SU and ASU. ASU has experience in work with foreign students, but EMU has begun to look for new methods in teaching mathematics using ICT. SU and ASU have more experience in students' individual works planning.

- This means that partners' universities have the potential to learn each from another. It also outlines future opportunities for cooperation which should be continued in four directions: at the department level, between academic staff, between students and in science.
- In author's opinion, the possible directions for further cooperation in mathematics would be work on interdisciplinary study programmes, gathering the experience on applied software in mathematics studies, development of a common database for studies, etc.
- Based on the latest theoretical knowledge of mathematics and its role in higher education, an important future task would be collection of mathematical and statistical modelling methods.
- No less important is the sharing of teaching and learning new experiences, developing joint methodical literature, e-communication, creation joint e-learning materials for students' independent work etc.
- In author's opinion, the perspectives include common research on several organizational aspects of mathematics studies process, e.g. the approaches to develop cognitive development of students, didactic aspects of e-learning, promotion of the development of the competences necessary for the labour market, etc.

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