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The Problems of Contemporary Education

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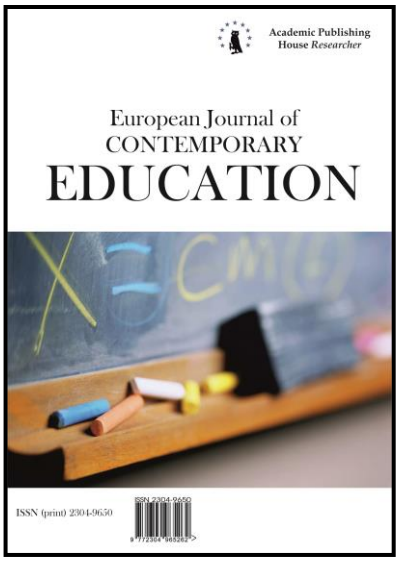

The Problems of Contemporary Education

Socio-Cultural Dimension of Military Education in Modern Russia

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Abstract

The article reveals the essence of the sociocultural approach as a universal tool which allows considering the process of modernization of cadet education in modern Russia in the complex determining its conditions and factors. The basic mechanisms of functioning of cadet education system are the processes that form the equilibrium diad "tradition – modernity". Sociocultural approach is interpreted as a concretization of universal evolutionism principle which is a compound of evolution idea with ideas of systemic approach. Sociological research based on empirical data confirms its worth for all educational systems. The authors define perspective directions and forms of institutionalization of socio-cultural modernization of cadet education in modern conditions.

Keywords: sociocultural approach, modernization, cadet education, traditional and modern, suvorovetc (a graduate of Suvorov Military School), cadets.

1. Introduction

Nowadays there is an obvious need for increased attention of scientific community to issues of all levels of modern education. On the one hand it would meet technological challenges of the twenty-first century and lack of conservation strategy of national education traditions accumulated over centuries where "traditional" and "modern" would be in a state of homeostasis. Primarily it

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concerns the institutions of cadet education because the cadet model is becoming increasingly popular in Russia and abroad in the modern society in terms of socio-cultural uncertainty. So the questions related to the search for a theoretical platform to study and identifying promising areas and forms of institutionalization of socio-cultural modernization of cadet education in modern conditions are brought up to date.

2. Materials and methods

This paper is based on fundamental research in general sociology, sociology of culture, sociology of education, military sociology and sociology of youth. They determine the logic of the research procedures and methodological approaches to the study of cadet education as an object of modernization in modern Russia. The discourse of "traditional" – "modern" society reflected in the works by A. Akhiezer, N. Lapina, P. Romanov, P. Sorokina, E. Yarskaya-Smirnova is served as a basic principle of methodology for socio-cultural analysis of modernization of cadet education. The use of scientific methods of research: classification, comparison, mapping and integration of data, univariate and multivariate data analysis and methods of concrete sociological research, including various surveys and interviews gives the opportunity to dissect the problem areas of quality and efficiency of its functioning.

3. Discussion

The sociocultural approach has developed on the basis of the system approach in sociology which considers society as a unity of culture and sociality. This approach is interpreted by P. Sorokin as a fundamental principle of society development. In the inseparable triad "personality, culture, society" no element can exist without the other two and the "core" is culture (Sorokin, 1992).

According to P. Sorokin all the society changes happen in the dynamics of cultures and the key role is played by the education system. Following that logic, N. Lapin identifies two possible types of society:

– a society with the rule of traditionalist values where the priority is the rules and regulations prescribed to subjects of social interaction (traditional actions);

– a society of liberal values with opportunities of purposeful rational (innovative) actions (Lapin, 2000).

Following the methodology of socio-cultural analysis A. Akhiezer builds up his model of society which is in "the conflict between two types of constructive tension (local and society in general)". According to the author overcoming the conflict must be achieved in culture, in the growth of reflection of Russian history. Understanding culture as text (program), A. Akhiezer reduces the problem of socio-cultural approach to "mainstreaming" and "socialization" of culture and determines the embodiment of these processes in life as the selection of texts and programs that enhance the ability of society to survive. We should select the most effective development programs that take into account the specific historical characteristics of the society from all the texts of culture (Akhiezer, 1997).

Despite different interpretations the authors agree that the sociocultural approach is not opposed to other approaches but complements them. It connects the civilizational and formational approaches into a unified whole. If civilizational approach includes sustainable components of human history (anthropological, ethnic, cultural) and formational approach focuses on the more variable (social, personal) structures, the socio-cultural approach explains the pairing of sustainable and changeable (the individual and society, culture and social) (Lapin, 2000).

In addition the socio-cultural paradigm is compatible with structural-functional, phenomenological and anthropological concepts as they all include culture as one of the most important elements of the social structure of society (Gvarliani et al., 2016). Modern Russian scholars P. Romanov and E. Yarskaya-Smirnova emphasize this role noting that the methodology of modern domestic researches is developing in the direction of sociocultural, phenomenological, ethnographic and critical approaches that allow us to analyze everyday practices of various professional communities and groups (Abrams, 2015).

The recognition of multiplicity of coexisting and competing rationalities and ethical systems allows us to understand the world of a particular profession from the inside better. Therefore, according to Romanov and the Yartsevo-Smirnova, the profession is not only the main parameter

of social structure but the personality identification that nominates him applying a social label. In its turn cadet education reinforces not just the skills of future profession but lays the foundations of metaprofession. Hence there is a high demand for institutions of this type which are created in each region a in the structure of the Ministry of Defense and other departments. Retrospective of transformation processes related to the modernization of cadet education at various stages of its formation is reflected in a number of papers by Russian sociologists, historians, educators and psychologists (Alpatov, 1958).

However, the analysis of scientific literature allows us to conclude that cadet education is poorly studied from the standpoint of the sociocultural approach. There is no theoretical-methodological basis of its research and no modern organizational model for students training. So there is a real need for a systematic analysis of military education, directions of its modernization and socio-cultural ground of its mechanism.

4. Result

Modernization of cadet education in modern Russia comes against the backdrop of a changing social reality that gives rise to uncertainty and risk, the transition from linear to non-linear type of development.

"Traditional" and "modern" in relation to cadet education set different trajectories of professional preferences of students. Hence, a significant part of graduates has got the lack of predisposition for their future profession (Moshenko et al., 1992).

The process of education institutionalization is constant in a changing society. New needs and standards arise, they are more appropriate to the emerging realities, appropriate sanctions find applications. These changes promote the formation of new institutional relationships, which are characterized by flexibility, democracy and good linearity (Romanov, Yarskaya-Smirnova, 2009).

The specifity of cadet education is a particular characteristic that defines the structure, content and dynamics of status and role relations between all participants of educational process (Mikhailov, 1997). And these relations determine the professional route for future work.

There are some problems in the interaction of environment and self-determining personality. In this regard, pedagogical support of professional self-determination is necessary along with the process of self-organization and self-determination. Self-organization, life and professional self-determination are in the process of socialization. Therefore, the goal of ongoing innovations in respect of cadet education is to create a model that is designed to generate modal personality with a philosophical culture, harmoniously combining morality, spirituality and the military-professional competence (Abrams, Osadchaya, 2016). It is necessary to form a person gifted with patriotic feelings and beliefs, with an active civil position and responsibility (Chuikov et al., 2016).

Based on the methodology of the system approach, cadet education is seen as an integrative unity. According to Luhmann (Luhmann, 1990), J. Clear (Klir, 1990), R. Flood and E. Carson (Flood, Carson, 1993) it evolves and undergoes significant changes and is characterized by a high degree of agreement on goals, objectives, values and results.

Institutionalization is the process of structuring and formalization of social ties and relations in the dyad "traditional" and "modern" in line with the sociocultural approach.

The outcomes presented are very important due to the fact that educational conditions ensure formation of educational thinking, devotion, reflection, develop skills for creativeness, targeting in educational sphere (Epaneshnikov et al., 2017).

Primary and secondary sociological information obtained in the course of sociological research on the basis of institutions of cadet education of the Ministry of Defense of the Russian Federation helps to identify the social characteristics of the existing model.

The results of the expert polls of command, teachers and officers from Moscow, Saint-Petersburg, Ussuriysk cadet military schools and Nakhimov Naval Academy (n = 172, 2013-2015), as well as the expert community veteran organizations of alumni of the Suvorov Military School (SMS), Nakhimov Naval Academy (NNA) and Cadet Corps (n = 69, 2013-2015) and pupils of the senior classes (n = 45, 2015) reveal the reflection of the respondents regarding the purpose, timing, training, human resources and issues of professional socialization.

As noted by the respondents, the main problems of students training should include:

– lack of retraining system of educators and teachers;

– imperfect institutional structure;

– imperfect value-oriented leisure activities organization;
– lack of social preferences at University admissions;
– lack of commitment of graduates to enroll in universities of the Ministry of Defense of the Russian Federation (see table).

Organization of educational process in conditions of the middle specialized military education requires the special attention of authorities to three main mechanisms of regulation of pupils' social behavior: selection, prescriptions and control at all levels.

The effectiveness of the mechanisms of prescriptions and control is defined by the rhetoric of the respondents in answer to the question "How did SMS affect your professional destiny?" in Suvorov-Nakhimov model of cadet education. The vast majority (95 %) of graduates of Suvorov Military schools (n = 123), NNA (n = 18) and Cadet Corps (n = 6) (2014–2015) expressed the following judgments,: "easily entered higher school", "became a good leader" "learned discipline and order"; "learned to live in groups", "became a good officer"; "provided career"; "well settled in civilian life." The judgments evaluated on a 5-point scale to values close to the maximum. These qualities can be defined as modal for the military or any other sphere of professional activity.

Table. Reflection on the tasks, timing of training and issues of professional socialization

Problematic issues		Command, teachers and administration (n = 172)	Alumni veterans (n = 69)	Senior classes Students (n = 45)
The task of SMS		– future elite of the armed forces training; – professional socialization of future officers; – competitive graduates training; – decent social lift		
Training time	7 years	82 %	58 %	34 %
	3 years	18 %	42 %	66 %
Staffing (requirements)		– reserve officers; – military experience and pedagogical skills; – to be competent teachers and educators. – love for children	– higher education – knowledge of foreign languages, – be able and willing to work with children – to have your own prosperous family, – to love children	– administration and teachers – military personnel
Main problems of preparation		– lack of retraining system of educators and teachers; – imperfect institutional structure; – imperfect value-oriented leisure activities organization; – lack of social preferences at University admissions; – lack of commitment of graduates to enroll in universities of the Ministry of Defense of the Russian Federation		

Original research and secondary sociological information obtained from expert assessments allow us to conclude that the current model of cadet education is quite wealthy.

This model does not involve the system of social preferences to graduates in spite of performing a vital social function – enabling children to receive a quality secondary education. It is noted by the vast majority of experts from the veterans, administration and interviewers of educational institutions.

Prospects of cadet education is conceptually substantiated and empirically confirmed in the structure of Russian society and are as follows:

1) Military unit is legally consolidated in the structure of military education which involves professional socialization from early teenage years (since the 5th grade);

2) Pupils of Presidential cadet corps have the right to enroll in specialized military schools after the 8th grade. Those who have chosen as a future professional route a career of police officer, lifeguard, border guards, and agents of the security services enter the cadet institutions of MIA,

EMERCOM and FSB. Graduates are given preference for admission to all higher schools for the training direction "State and municipal management";

3) Graduates of cadet schools proceed to the universities on a common basis, or by decision of the government of entity (in the presence of quotas or budget financing) can obtain the right to enter civilian universities on preferential basis in the constituent entities of the Russian Federation;

4) Modal personality of a graduate of military school is defined by the following characteristics, fixed in the State standard:

– patriotism, sense of duty and honor;
– high general educational development (GPA not lower than 4.5);
– command of foreign language, the ability to read and translate original sources;
– confident use of the computer;
– military skills enabling to guide subordinates due to the requirements for junior officers of Army and Navy;
– great sports training (1 category on one of military-applied kinds of sport);
– initial skills of system analysis in questions of military administration and public administration;
– ability to work and self-training;
– knowledge of basic etiquette and good manners;
– ability to dance the waltz and play at least one musical instrument.

Each of these basic (primary) professional ability is confirmed by a certified document. The goals of the educational exposure and career guidance are combined with the organized system of social diagnostics and psycho-pedagogical support. This system is able to respond immediately to gaps and omissions in order to correct the General level of education and professional socialization, to identify individual talents of pupils and to create conditions for their development.

5) It is necessary to create feedback system of institutions of secondary specialized military education with the graduates by the establishment the Council of veterans-graduates in each institution.

Public organizations of graduates of Suvorov military, Nakhimov naval schools, special military schools and cadet corps are established in most regions of the Russian Federation. They are united in the national Union of cadet associations "open Commonwealth of Suvorov, Nakhimov cadets of Russia" which has become a significant and influential part of civil society in Russia. These organisations represent a kind of Corporation organized according to the principle of spirit affinity and a kind of corporate form of civil control over the institutions of military education and quality of education there.

6) Inclusion of these ideas and events in part of the respective priority National projects.

External social environment sets out the overall direction of modernization of cadet education. It is built on three pillars: optimization of number of schools; improving the quality of education; relationship of education and the latest achievements of science and technology.

On the one hand it is necessary that the dynamics of transformation of military education ensures the highest international standards and on the other – it should reproduce the best national experience in educational activities and meet the requirements of the objective law of mental identity.

Cadet education gives the graduates not just the skills of their future profession but lays the foundations of metaproperties for the whole life. This feature characterizes the specificity of the culture formed in the institutions of military education, sets pupils targets of socialization and represents such quality characteristics as objects of identification, system of values, traditions, ethical codes, culture of interpersonal relations and attitude to religion.

Research in various fields of scientific knowledge suggests that the educational environment is recognized as one of the main factors of professional socialization.

B. Bim-Bad says: "Educational and educative environment is a constantly expanding sphere of human activity. It includes increasing wealth of its relations with nature and cultural objects – things created by man for man, by social environment" (Bim-Bad, 2001).

Social, educational and professional environments are defined as environments of one subdivision – open, nonlinear, self-organizing in accordance with the synergetic concept.

Professional education built on these principles meets the requirements of full consideration of individual abilities and methods of continuous education most effectively.

While the educational environment is presented by external and internal institutional structures affecting institutional subsystems and setting socio-cultural practices.

The external environment sets out the "rules of the game", defining social, political, economic, psychological and socio-cultural conditions of professional socialization. In addition it has several social functions:

– reconstitutes and transforms sociocultural practices, general ethical and moral codes for different professional groups;

– stratifies military profession in the social structure of society and gives the military-grades the system of preferences in social policy;

– issues value judgments regarding the prestige and elitism in the labour market of military profession;

– builds institutional formal and informal discourse on civil-military relations;

– defines the role of the middle specialized military education as a social institution in the transformation of the social structure of society.

The internal social environment is simulated by school. The social reality of student is divided into many fragments. The pupil accepts some of them the others are rejected by him. The result is a thesaurus as systematic, comprehensive and essential part of knowledge for orientation in the socio-cultural environment.

According to a socio-cultural analysis we can conclude that the old "traditional" characteristics dominate in the attitude of pupils of the specialized military schools to the educational environment (in terms of quality and efficiency). They are associated with values of training and education. However, there is a tendency of formation of modern models of relation to social reality (pragmatism of judgments, a certain degree of mistrust towards each other) on the basis of the rational type of social interactions.

5. Conclusion

Thus, the sociocultural approach is a universal tool which allows us to consider the process of modernization of cadet education in the determining factors complex: structural, institutional, socio-political, socio-economic and socio-cultural. We should take into account the dynamics of changes of value structures which set the boundaries of individual transformation as an active subject of education.

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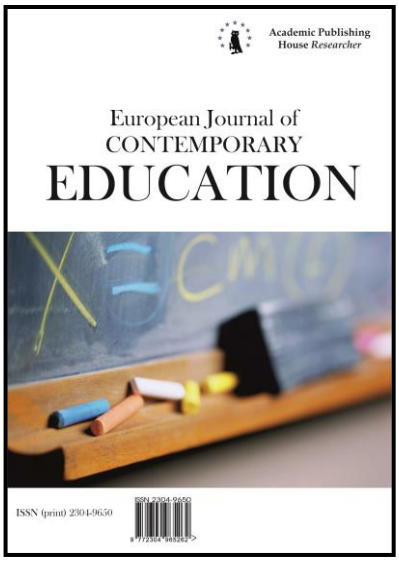

Turkish Jewelry Technology Pre-Service Teachers' TPCK Integration Through Ob-Video Materials: A Pedagogical Action Research

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Abstract

The utilization of educational technologies in class applications and their reflections on the education have not reached to desired levels today; in other words, there are problems in the integration of technology into teaching and using technology in conjunction with the knowledge of subject field and pedagogy. The aim of this research is to facilitate the jewelry technology pre-service teachers' integration of technology with pedagogy and content through video materials. The study was designed in a qualitative dimension and a pedagogical action research model was used. An open-ended questions form was developed as a qualitative data collection tool to be used in the process of action research. The study group consisted of 77 jewelry technology pre-service teachers of the classroom where the researcher lectured *Instructional Technologies* course in a state university. The following conclusions were reached after the application according to the pre-service teachers, the use of ob-videos; may have a positive effect on pedagogical applications in the process of teaching-learning, may make pedagogical applications more entertaining and interesting in the process of teaching-learning and may help technology integration into the knowledge of content and pedagogy in the process of teaching-learning.

Keywords: ob-videos, action research, TPCK.

1. Introduction

In today's world, another professional characteristic that is burdened on teachers is the skill of designing. As if they are true designers, teachers are expected to design educational activities inside and outside the classroom, to structure every aspect of this design to keep the students engaged. In designing these effective teaching-learning processes, there are subject areas that a teacher must be knowledgeable about. These are the knowledge of the subject field (content) and

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the knowledge of pedagogy. Nevertheless, the subject knowledge and pedagogical knowledge have been supported by technological knowledge for a long time. Whichever instructional design method is used for designing teaching-learning medium, the use of technology has been a desired element to be used effectively in conjunction with the subject knowledge and pedagogical knowledge. This conjunction is known as Technological Pedagogical Content Knowledge (TPCK). However, the aim of this study is neither to create nor to re-structure the literature. There are already a number of researches, compilations, surveys, scale developments etc. in that scope. Examining the literature so far; it is seen that investigations were generally focused on the TPCK sufficiency of teachers and pre-service teachers (Scrabis-Fletcher, 2016; Abbitt, 2011; Hsu, 2016; Sancar Tokmak et al., 2013; Jang and Tsai, 2013); studies were aimed at enhancing the TPCK literature (Valanides and Angeli, 2009; Cox, 2008; Mishra and Koehler, 2008; Archambault and Barnett, 2010; Hofer & Harris, 2011; Koehler & Shin, 2009; Graham, 2011); scale development studies were conducted on TPCK (Kiray, 2016; Tseng, 2016; Şahin, 2015; Sang et al., 2016; Koehler & Mishra, 2005; Yurdakul et al., 2012; Baser et al., 2015); and the effectiveness of applications for TPCK during the learning process were investigated (Koh and Chai, 2016; Niess, 2015; Kramarski and Michalsky, 2010; Baran and Uygun, 2016; So and Kim, 2009; Boering, 2009; Haris and Hofer, 2009; Chai et al, 2011; Marino et al., 2009; Koh and Divaran, 2011; Lee and Hollebrands, 2008). However; although the problems in the implementation of the TPCK were discussed in the literature, the lack of studies that intend to reveal teacher's or pre-service teacher's problems about the integration of technological knowledge into their knowledge of the subject field and pedagogy in the framework of TPCK, and of researches that are based on their solutions, compared to the other studies mentioned above, is noteworthy. The aim of this study — in the light of the motto about knowing how to do something rather than knowing what it is, is to try to find an answer to the following questions; how can we integrate technology with the knowledge of subject field and pedagogy in classroom environment, how can we involve technology in this process, rather than to answer what TPCK is. Within this scope, the problems that pre-service teachers experience are as much important as the challenges that teachers, as the subjects of TPCK applications, face during the process because how pre-service teachers integrate technology with education is considered important when they start teaching both in terms of designing teaching-learning processes and ensuring their students' adaptation to educational technologies. In addition, technology remains to be a supporting and enabling phenomenon in facilitating education of digital native new-generation students.

According to Misra ve Koehler (2006), TPCK is an emerging form of knowledge that goes beyond all three components (content, pedagogy, and technology). TPCK is the basis for teaching with the help of technology, and requires an understanding of pedagogical techniques: knowing how technology can help in solving some of the problems faced by students, some knowledge on how to use technologies to build on existing knowledge and knowing how to develop new epistemologies or improve the old ones. However, it is expressed by researchers that the utilization of educational technologies in in-class applications, and their reflections on the education have not reached to desired levels today; in other words, there are problems in the integration of technology into teaching, let alone using technology in conjunction with the knowledge of subject field and pedogogy; (Kim et al., 2013; Ertmer et al., 2012; Tsai and Chai, 2012; Keengwe, 2008; Earle, 2002; Christensen, 2002; Jhurree, 2005; Vannatta & Beyerbach, 2000; Pierson, 2001). According to Parker (1996), with the objective of preparing teachers for the next century, college faculty are increasingly being expected to utilize the use of technology; facilitate its use by their students; and integrate technology into teaching. Unfortunately, the literature reveals that technology is not methodically integrated into many preparation programs and that the opportunities for both faculty and students are often limited owing to a lack of proper equipment, training and time.

As reported by Topp et al. (2006), preparing teachers to use computer technology in classrooms is an exciting challenge for the educational community and specifically for teacher preparation institutions. Teacher education is often criticized for the inadequate preparation of education majors concerning using educational technology in the learning-teaching process. For Brinkerhoff (2006), leaders in the field of educational technology agree that there are various barriers affecting technology integration. These barriers may be classified in four main categories: resources, institutional and administrative support, training and experience, and attitude or personality factors. In addition to the aforementioned problems, some of the problems confronted

during technology integration are resistance to change, teachers' habits, inadequate technological infrastructure, and the growing difference between the teacher and the student in the capacity of using technology. Ersanlı (2016) explained this situation as teachers' inadequacy in using technology as well as their lack of knowledge about how to incorporate technology in pedagogical applications. In addition, according to Misra and Koehler (2006), the rapid rate of technological advances, inappropriate software design, the established nature of teaching and learning, and an emphasis on what rather than how are some of the factors that make technology integration difficult.

One of the most important problems concerning the effective application of TPCK may be the failure of integration of technology into teaching by teachers. The effectiveness of the designing stage on learning-teaching processes by the teacher may be supported by the education they receive concerning with this subject during their professional education. Another solution may be the use of professional development programs and in-service training programs; however, sorting out these complications during the educational process before the graduation of teachers shall be more effective in countries like Turkey, where the total number of teachers is above 800,000. The reason to this is that many teachers use predominantly the professional knowledge and experience they gained throughout their education for many years in their professional life, and they fail to adapt quickly to changes. For this reason, it is very important to make teachers gain TPCK skills during their education. In fact, courses like *educational technology and material design, computer-assisted education* etc. are given throughout teacher training in this context. In these courses, subjects such as how to use different educational technologies, how education technologies are used in conjunction with the knowledge of subject field and pedagogy, and the use of digital materials are studied. Nevertheless, these courses alone are not enough to provide TPCK knowledge to teachers and pre-service teachers. In fact, various technological agents may be used to make teachers use educational technologies effectively for their TPCK integration. One of these tools is the video technology.

According to the report by Pappas et al. (2016), the implementation of learning videos as an educational tool has been increasing rapidly for the past years. In addition, for Kuimova et al. (2016), the use of the video tool promotes the development of students' psychic activity, attention and memory. During viewing a video, a shared cognitive activity atmosphere is created in the classroom. In such an environment, even a negligent student becomes interested in understanding the content of the video. According to Bajrami and Ismaili (2016), continued technological advancements present new opportunities for teachers to incorporate online materials and videos into traditional classroom environment, allowing both learning and teaching to become more interesting and meaningful. Furthermore Shanshan (2016) states that, in addition to authentic videos which are an engaging type of multimedia, entertaining and real-life-language content that is relevant to popular culture attracts students' attention the most. Wong, D., Mishra, P., Koehler, M. J., & Siebenthal, S. (2007) introduced the concept of i-Video by offering a new perspective in the field. "i-Videos" – short, two-minute, digital videos designed to evoke powerful experiences about educative ideas. For example, an i-Video might enable viewers to experience the vastness of space, the interconnection between people and their environment, the timeless themes in great literature, and other compelling subject-matter ideas. In fact, the aim of the vast majority of studies on the use of video can be considered to help teachers using these tools in facilitating TPCK integration. Inspired by the i-Video by Mishra and Koehler in technology integration, objective-based videos (ob-videos) were put to work in this research, since the pre-service teachers were asked to make videos based on the objectives stated in the curriculum, rather than i-Videos. In the ob-video employment, individuals develop their videos in accordance with the objectives of the curriculum and present them in the classroom. Today when the success of a learning-teaching process is measured by the extent to which students reach the objectives, the fact that videos are objective-oriented is contributive in terms of educational perspective. Videos offer teachers the opportunity to ensure integration of technology into their knowledge of content and pedagogy, as well as to make it easy for their students to reach their objectives. While preparing their ob-videos, the pre-service teachers followed the scheme developed by the researcher. For the effectiveness of the action plan that was carried out in the scope of action research, the research question was produced in the light of TPCK principles as follows: How ob-video materials affect the technology integration in teaching practices of pre-service teachers in the classroom?

Sub-problems are as follows:

1. What are the pre-service teachers' ideas about the use of ob-video materials concerning pedagogical process?
2. What are the pre-service teachers' ideas about the use of ob-video materials concerning the content knowledge?
3. What are the pre-service teachers' ideas about the use of ob-video materials concerning the integration of technology into the knowledge of content and pedagogy?

2. Method

The study was designed in a qualitative dimension. The qualitative researches use systematic observations to reach an understanding; the researcher discovers the world instead of trying to change the conditions to isolate variables (Johnson, 2015: 6). At the same time, a quantitative research is an approach for exploring and understanding the meaning individuals ascribe to a problem and the process involves emerging questions, data typically collected in the participants' settings and the researcher making interpretations of the meaning of the data (Creswell, 2014: 4). The grounded theory, phenomenology, ethnographic studies and action research are types of qualitative research. This research was conducted in the form of an action research, which is one of the qualitative research techniques, since it involved developing a solution offer to a problem encountered in the lecturing process of a researcher, implementing the solution offer and measuring its effectiveness within a plan.

Axle (2003) argues that the main purpose of an action research is to improve a practice. Secondly, an action research provides to learn first-hand and thus to apply voluntarily what is learned by allowing individuals executing the application to directly participate in the research process. Thirdly, since the research is conducted in the real world, it is aimed at directly solving the existing problems. Fourthly, it provides empowerment of individuals through direct participation, and ensures co-operation and social change. Finally, it also removes resistance in the process of transferring the solutions that are reached at the end of direct participation to the research to application. And according to Artvinli (2010), today a "teacher researchers" profile has regained importance with a constructivist approach. In parallel to this, the need for action research is felt more day by day. Because, a teacher now has to know how to plan a lesson, how to develop student-centered activities, how to design materials and organize them visually, and test them in the classroom. Moreover Baskerville (1999) states that, this strategy involves the formulation of a theory, intervention and action-taking in order to introduce change into the study subject, and analysis of the ensuing change behavior of the study subject. Finally, action research is a process where practitioners are involved in the process to understand and solve the problems that arise during the practice. The proximity of the researcher to the data, their ability to learn and experience the process closely, their participatory role and being the person who collects data are important factors to prefer this approach (Yıldırım and Şimşek, 2006: 78) and it is a work in progress (Miller et al., 2003). According to Creswell (2012, 577), educators aim to improve the practice of education by studying issues or problems they face. Similar to mixed methods research, action research uses data collection based on either quantitative or qualitative methods or both. In addition, action researches are carried out in two ways; practical and participating.

In this action research application, the practical action research method was used. In this method; teachers seek to research problems in their own classrooms so that they can improve their students' learning and their own professional performance. Practical action research involves a small-scale research project, narrowly focuses on a specific problem or issue, and is undertaken by individual teachers or teams within a school or school district. In this context, academicians with questions about how to motivate their students, how to encourage their students to be more analytical or to engage the students in class discussions can use their research skills by using pedagogical action research to test new approaches in the classroom (Tunon, 2009). For this research; the action research method was preferred and a practical approach was used due to the factors such as that the researcher begins to carry out the research on problems he faces in the classroom, the researcher is also the executer of the tasks, he takes part in the action plan, he is close to the data and directly experiences the process.

2.1 Procedure of the research

In this study, the pedagogical action research model by Norton (2009, 70) was used and this model includes action researches conducted for teaching and learning process. The reason to choose this model is that the problem whose action plan is developed arises in the education environment, in other words includes the intervention for teaching-learning process.

Norton (2009, 70) built his pedagogical action research model on a 5-step procedure and used the abbreviation of ITDEM.

Step 1 Identifying a problem/paradox/ issue/difficulty
Step 2 Thinking of ways to tackle the problem
Step 3 Doing it
Step 4 Evaluating it (actual research findings)
Step 5 Modifying future practice

This research was also carried out taking into account the five steps stated above.

Step 1 Identifying a problem/paradox/ issue/difficulty

The researcher is a teacher who has been lecturing the course "*instructional technologies and material design"* for about 5 years in an institution providing teacher training. In the said course, the researcher primarily covered the topics of educational technology, instructional technology, design of learning-teaching processes, instructional design models, TPCK, material design principles, material types. When the theoretical part of the course was completed, the researcher asked the pre-service teachers to develop teaching materials in accordance with the goals of the branch of the program they will be assigned to and present them as a 20-minute teaching practice in the classroom to improve their skills of developing materials. The researcher saw that most of the pre-service teachers preferred to develop and use 2-dimensional and three-dimensional materials in the classroom. In other words, the researcher noticed that the pre-service teachers did not prefer to use instructional technologies in their 20-minute teaching performance but focused mostly on hands-on materials and their TPCK competence was not at a desired level and he analyzed this situation as a problem. The researcher conducted interviews with the students why they did not use technology. In literature review, he also obtained the information that in parallel to this situation, there were problems in the integration of technology into teaching and learning processes. As a result, the researcher thought that in order to integrate technology into teaching processes and support their knowledge of content with technology, pre-service teachers should acquire these skills during their professional education. Then he started an action research, based on the problems he experienced in the classroom, to ensure that pre-service teachers can use their knowledge of technology in conjunction with their knowledge of content and pedagogy.

Step 2 Thinking of ways to tackle the problem

The researcher reviewed the literature on the experienced problem in more detail to carry out an action plan to fight with this problem. He interviewed the pre-service teachers. He developed various suggestions to facilitate the TPCK integration for the pre-service teachers. Inspired by the "i-Video" material, which was developed by Wong, D. Mishra, P. Koehler, MJ, & Siebenthal, S. (2007), he decided to use the material called ob-videos while developing various suggestions. In this context, in accordance with the pedagogic action research, he discussed with other experts in the field, got their opinions, interviewed the students and decided to use a video material.

Step 3 Doing it

Within the scope of this course, the pre-service teachers performed two teaching activities. The researcher divided the class into groups for the second teaching practice in the classroom and asked all the teacher candidates to practice with video material. The groups consisted of 3–4 students. The researcher gave a lecture to the pre-service teachers on how to develop ob-video materials, the principles of design and preparation. In addition, he intended to provide contribution of mobile phones in the teaching-learning process and asked the pre-service teachers to use their mobile phones in filming their videos. He thought that the students' filming their videos by their mobile phones as an effective way of using their mobiles will positively affect their TPCK attitude. The pre-service teachers studied the syllabuses of the branches they will be assigned to, issued by the Minister of Education, and determined the topic and objectives of the ob-videos they will produce. After the objectives were determined, appropriate video scenarios were created for the objectives. Within the scope of the scenarios, they took in-class and out-of-class video footage. They added to their videos features such as voice-over, subtitle, caption etc. and completed

their task. In the second presentation, each group presented their video footage lasting 3–10 minutes with the help of a projector and computer in the classroom. Before the presentations, all the class was informed about the topic and objectives, the viewers in the classroom were asked for their opinions about how affective the ob-videos were in achieving the objectives, discussions were made and feedbacks were received.

Step 4 Evaluating it (actual research findings)

The researcher developed and applied a form of open-ended questions in order to collect qualitative data to measure the effectiveness of ob-video materials on the TPCK knowledge of the pre-service teachers in accordance with the action plan he developed.

Step 5 Modifying future practice

The groups modified their videos with the feedback received during the presentation of the ob-videos that were produced in accordance with the action plan.

2.2 Data Collection Tool

An open-ended questions form was developed as a qualitative data collection tool to be used in the process of action research. In development of a qualitative data form, the use of qualitative data collection tools is the main focus in data collection. The action research primarily remains within the borders of a qualitative research (Johnson, 2015: 79). A form consisting of three open-ended questions was developed to be used in the research. In the process of developing the questions, firstly a literature review was performed, video materials and TPCK technology integration were examined and 7 questions were prepared. In the scope of TPCK, the use of video technology was considered as a technology use and it was aimed to develop questions to collect data for the effects of the use of video technology on presentation of the knowledge of content and implementation of pedagogical information. In addition, the researcher made observations within classroom. For the validity of the questions, five experts from *Curriculum and Instruction Department* were consulted for their opinions and four questions which were not considered suitable by the experts were excluded from the research. It was come to the conclusion that it would be sufficient to include 3 questions in the form. The pilot application of the open-ended questionnaire was performed on 4 students and the questions were put into final form by examining factors such as the time required to fill in the form and intelligibility of the questions.

2.3 Research Group

Since the researcher made an action plan for the problems he encountered during learning-teaching process, due to the very nature of a pedagogical action research, the study group consisted of 79 jewelry technology pre-service teachers of the classroom where he lectured *Instructional Technologies* course. However the forms of two participants were not found suitable and excluded from the study and the forms of 77 pre-service teachers were analyzed. Since the researcher did not have generalization concerns, no sampling was made in the universe.

2.4 Data Analysis

The data obtained in the research were subjected to content analysis, which is one of qualitative data analyses. The main objective in the content analysis is to reach concepts and relationships that could explain the collected data and the data are subjected to a deeper processing. The data are analyzed in 4 stages: 1. Encoding data, 2. Finding themes, 3. Arranging codes and themes, 4. Identifying and interpreting results (Yıldırım and Şimşek, 2006, 227).

2.5 Validity and Reliability

In terms of validity and reliability, the research was based on the methods, developed by Yıldırım and Şimşek (2006, 265), who were inspired by Erlandson, Harris, Skipper and Allen (1993), and used for generally accepted concepts in qualitative research. In qualitative researches, methods such as long term interaction, depth-oriented data collection, expert inspection, participant's validation, are used to achieve internal validity (credibility). In long-term interaction, a researcher is expected to be in a long-term interaction with data sources. The researcher was in interaction with the pre-service teachers who were included in the research throughout an academic year. The fact that the course where the research took place was a second semester course also helped extend the duration of the interaction. The researcher developed a qualitative data collection tool to collect depth-oriented data and could gather more comprehensive data with the questions he prepared. For expert examination, three faculty members from *Curriculum and Instruction Department*, who were specialized in qualitative research methods and had a general

knowledge about the research subject, were consulted for their opinions. At the same time, all three faculty members lecture the same course that is used in the study.

For external validity (transferability), the researcher is expected to use detailed description and purposeful sampling methods. Direct citations are often used in a detailed description. A detailed description of qualitative data is also important. In this study, direct quotes were submitted from the participants and content analysis was conducted to describe detailed descriptions of their views. Internal reliability (consistency) is revealed during development of data collection tools by researchers, and in the process of data collection and analysis. In this context, the researcher received expert opinions, generated the questions after a detailed literature review, modified them according to the feedbacks and personally got involved in the process of data collection. In order to achieve external reliability (verifiability), Miles Huberman inter-coder reliability score was calculated for coder consistency in the process of analyses.

Table 1. Miles Huberman Reliability Scores Table

Questions	Miles Huberman Reliability Score
1st Question	0,89
2nd Question	0,83
3rd Question	0,88

Two experts from the Curriculum and Instruction department analyzed the codings. As shown in the Table 1, the scores of the three questions for coder consistency are > .70, which indicates that the coding of the two experts are reliable.

3. Results

In this section, the results of the content analysis of the data obtained from the answers given to the three sub-problems of the research and the direct quotations are given.

3.1 The findings of the first sub-problem

The content analysis of the statements about the effects of development and use of ob-video materials on pedagogical applications, which is the first sub-problem of the research, are given in Table 2.

Table 2. Summary of the qualitative results related to Technological Pedagogical Knowledge (TPK) (N=77)

Theme	Codes	Sub-Codes	*f*	%
Ob-video Materials Supporting Technological Pedagogical Knowledge (TPK)	Pedagogical Process (Instruction)	Positive Support For Instruction	41	35.3
		Entertaining Instruction	29	25
		Attractive Instruction	23	19.9
		Motivating Instruction	9	7.8
		Economic	8	6.9
		Support concretisation	6	5.1
		Total	***116***	***100***
	Pedagogical Process (Learning)	Facilitating learning	29	43.4
		Support retention	23	34.3
		Activating learners	8	11.9
		Improving imaginative skills	4	5.9
		Improving creativity	3	4.5
		Total	***67***	***100***

The answers given by pre-service teachers are gathered under two different codes in the process of teaching and learning. The most emphasized three elements in the pre-service teachers' views for the effects of ob-videos on teaching are that ob-videos will have a positive influence on teaching, they are amusing and engaging, and will provide motivation. The expressions of some teachers on this question are given below.

…Video materials will enable us to perform learning-teaching activities in an active way in the classroom and allow students to be sociable and effective during the class. They will allow us to teach the students desired goals and objectives in a more pleasant and active manner. Beside their contribution to students, video materials also may help us learn and use the internet and technology in education…

…Ob-videos constitute an effective learning-teaching process. I think their use will be very successful in attracting students' attention to the lesson. Because these videos involve many sense organs. They first attract students' attention, motivate and increase eagerness to learn…

…Certainly they will have a positive effect. Permanent learning may be realized by making the learning-teaching process more effective with visuals and sounds….

…The visuals always attract students' attention in the classroom. I realized it more clearly in the course presentation we made at the school where we served our internship. The children listened more carefully and attentively the lesson presented with visual materials. The visuals presented after teaching the subject topics increase the efficiency of the lesson….

Two other important factors on which the pre-service teachers talked about are that ob-video materials transformed pedagogic applications into an entertaining format and attract students' attention. In this context, the pre-service teachers expressed the following opinions.

…I think videos can attract students' attention more as they appeal visually. I believe video materials are among the best teaching methods for students who forget what they read or hear…

…I think they are more understandable in a shorter time; they are effective in learning while having fun and in increasing memorability…

…They offer a more entertaining learning environment for students. They make it easier to understand the lesson. They improve the sense of investigation and the ability to imagine…

The most emphasized three elements in the pre-service teachers' views for the effects of ob-videos on learning are that ob-videos will facilitate learning, contribute to persistence of learning and activate learners. The expressions of the pre-service teachers are as follows.

…..I think students learn by watching with this method. I also saw that this method ensures memorability of the information while transforming learning into fun…

…Video materials may increase the desire of students to learn. And they will allow them to learn a lot in a short time…

…Video materials may offer permanent learning for students visually…

…Video materials may allow students to learn, even learn by having fun, and make it more permanent without forgetting what they have learned in the learning-teaching process…

3.2 The findings of the second sub-problem

The content analysis of the statements about the effects of development and use of ob-video materials on presenting the knowledge of content, which is the second sub-problem of the research, are given in Table 3.

Table 3. Summary of the qualitative results related to Technological Content Knowledge (TCK) (N=77)

Theme	Codes	Sub-Codes	*f*	%
Ob-video Materials Supporting Technological Content Knowledge (TCK)	Preparing the content for ob-video use	self-evaluation regarding the content	19	57.6
		accession to the contemporary content	9	27.3
		development of content knowledge	5	15.1
		Total	***33***	***100***
	Presenting the Content with ob-video	Positive effect on presentation of the content	21	42.8
		Support concretization of the content	9	18.4
		Enhancing to create attractive content	7	14.3
		Promoting retention of the content knowledge	5	10.3
		Visualizing the content	4	8.1
		Clarifying the issues in the content	3	6.1
		Total	***49***	***100***

The answers given by the pre-service teachers were grouped under two different codes as making the content suitable for ob-video materials and delivering the content through ob-videos. The most emphasized two elements in the pre-service teachers' views for making the content suitable for ob-video materials are the need for making self-assessment for the possessed knowledge of content and the requirement to access to current information. The expressions of some pre-service teachers for this question are given below.

….The process of delivering the knowledge of content through video materials allowed me to test my knowledge, made me realize that I should get to know general characteristics of students, what kind of a path I should follow in making students reach the objectives, and that I should provide my knowledge of content according to the level of students…

…At first, video materials made me feel insufficient and helpless in presenting my knowledge of content to the students. Then it took a fun turn. They helped me test my knowledge and expand my research process…

…I consulted experts to obtain the necessary information in the video that I prepared; I wanted to convey more accurate information by doing research from the books. In doing so, I improved myself with current and accurate information by eliminating my shortcomings…

The most emphasized three elements in the pre-service teachers' views with regard to presenting content through ob-video materials are that ob-videos have positive effects on presenting content, and they contribute to concretization of the content and to creation of interesting content. The expressions of some pre-service teachers for this question are given below.

…Ob-videos allowed us to present the theoretical knowledge more effectively and explain it better. Technology supported education is more effective in delivering our knowledge…

…In the field of jewelry, size and quantities are very important. The theoretical knowledge that students cannot visualize in their head become more understandable with this method…

…Considering especially old jewelry and applied techniques, the use of videos will help students in an area with high visually, such as jewelry…

…The use of video material extremely helped me concentrate in presenting my content knowledge. I could not introduce the formation process of the diamond without the support of video technology…

3.3 The findings of the third sub-problem

The analysis of the answers given by the pre-service teachers to the how ob-video materials may affect the integration of technology into the knowledge of content and pedagogy question, which is the third sub-problem of the research, are given in Table 4.

Table 4. Summary of the results related to the question of whether or not ob-video materials helped integration of technology into your knowledge of content and pedagogy (N=77)

Theme	Code	Sub-Codes	*f*	%
Ob-video Materials Supporting Technological Pedagogical Content Knowledge (TPCK)	Interaction of technology with pedagogy and content knowledge	Effective on interacting the three components	72	66.7
		Providing audio-visual support	13	12
		Facilitating the interaction	12	11.1
		Enabling teaching and learning	11	10.2
		Total	***108***	***100***

The answers given by the pre-service teachers were grouped under a single code as technology integration into knowledge of content and pedagogy through the use of ob-videos. The most emphasized sub-codes under this code are that ob-videos may help this interaction, provide audio-visual support, facilitate the interaction and the process of learning-teaching. The expressions of some pre-service teachers for this question are given below.

…Video materials opened the way for integrating technology into the knowledge of content and pedagogy. They may allow us to present the content to the students more easily by combining information with education sciences…

… I believe all of these concepts complement each other. And in a video material, technology, content knowledge and pedagogical applications complement each other…

…The use of videos makes more sense by integrating technology into our knowledge of contend and pedagogical practices…

4. Conclusion and discussions

In line with the action plan, the pre-service teachers were asked to produce ob-videos with the purpose of integrating their technology knowledge into their knowledge of content and pedagogy and were asked to use them. The following conclusions were reached after the application:

According to the pre-service teachers, the use of ob-videos may;

- Have a positive effect on pedagogical applications in the process of teaching-learning,
- Make pedagogical applications more entertaining and interesting in the process of teaching-learning,
- Motive learners in pedagogical applications in the process of teaching-learning,
- Be effective in presenting the content knowledge in the process of teaching-learning,
- Contribute the retention of what is thought in presentation of content knowledge in the process of teaching-learning,
- Make pre-service teachers realize that it is necessary to make self-evaluation on their content knowledge while developing ob-video materials to present content knowledge in the process of teaching-learning,
- Make pre-service teachers realize that it is necessary to access to current content knowledge while developing o-video materials to present content knowledge in the process of teaching-learning,
- Support concretization of the content knowledge and creation of interesting content in presenting content knowledge in the process of teaching-learning,
- Help technology integration into the knowledge of content and pedagogy in the process of teaching-learning.

The fact that teachers cannot integrate technology into the knowledge of content and pedagogy at desired levels in classroom environment was demonstrated with the help of literature review presented in introduction of this study. Today, both K12 students and students of higher education use technology actively not only in certain processes but at every stage of life and integrate technology into their lives. In today's education system where this type of a learning group exists, it is not acceptable for teachers not to be able to use technology effectively nor integrate technology into their knowledge of content and pedagogy. For these reasons, teachers are expected to acquire such technological knowledge and skills and put them into practice when they are pre-service teachers. Here, one of the important responsibilities lies with the lecturers giving lecture on instructional technologies in education institutions. According to Girod et al. (2017), video is a powerful medium for communication and learning. With increased accessibility to digital video production equipment, an important question is what role teacher production of video might have in teacher education.

There are many digital learning and teaching agents that can be integrated into the knowledge of content and pedagogy. However, taking into account factors such as teacher education program, technology knowledge and skills of pre-service teachers and the technological infrastructure of the institution, lecturers can organize training activities at least to facilitate TPCK integration of pre-service teachers with the help of such digital tools. In this study, the pre-service teachers were asked to produce videos and in doing so they were expected to focus on the targets and objectives of the content. In this context, the pre-service teachers filmed ob-videos and used them in the classroom. Some pre-service teachers lectured in the classes where they served their internship using ob-videos they made. In general, the pre-service teachers expressed that ob-videos may have a positive effect on presenting content knowledge and pedagogic applications. This can be associated to the facts that the pre-service teachers were able to give a lecture on subjects

requiring a long time and a detailed description in a shorter time with the help of ob-videos and they were interesting because of their audio-visual nature. In addition, the pre-service teachers stated that the use of ob-video materials made it easier for them to lecture those subjects they experienced difficulty in lecturing, concretized the concepts and helped clarifying the subjects. According to Turro et al. (2016), video-supported courses get better overall results in the appreciation and engagement from the students. In general, it was come to the conclusion that ob-video is a digital tool that can be used by pre-service teachers in integrating technology into their knowledge of content and pedagogy. As a result of the research conducted in accordance with this action plan, it can be said that ob-videos made a contribution to technology integration of the content knowledge and pedagogical knowledge of this group. The following is recommended for future researches:

- In order to assess the effectiveness of an action plan, a quantitative data collection tool can be developed and used as well as with a qualitative data collection tool.
- The effectiveness of different digital tools that can be used in technology integration of pre-service teachers into their knowledge of content and pedagogy can be assessed.
- Educational activities can be organized within the scope of professional development programs for technology integration of teachers on duty.
- In accordance with longitudinal studies, after being appointed for the first time, analyses can be performed on the processes of technology integration of teachers, who were previously implemented an action plan, into the knowledge of content and pedagogy.

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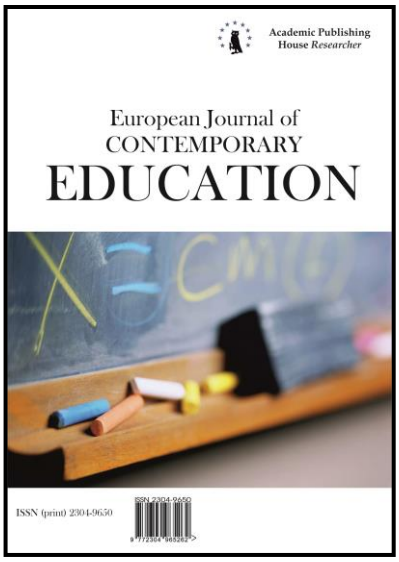

The Relationship between Gender, Motivation and Achievement in Learning English as a Foreign Language

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Abstract

This study deals with the research into the relationship between gender, motivation and achievement in learning English as a foreign language. A good command of English is of paramount importance for an individual to be successful in numerous aspects of life such as professional, personal and educational. The aim of this research was to determine how gender influences motivation and achievement in learning English as a foreign language. The research sample consists of 185 students aged ten (fifth grade), fourteen (ninth grade) and eighteen (twelfth grade). The results demonstrate a statistically significant relationship between gender and motivation. Ten-year-old students exhibit the highest motivation for learning English as a foreign language, while the eighteen-year-olds exhibit the lowest motivation. In addition, female students are more successful at learning English as a foreign language than male students at each group/grade level. Moreover, the findings also reveal statistically significant results in measuring the correlation between achievement and motivation and can be highly beneficial for teachers, parents and students in adopting the most effective approach to learning and teaching English as a foreign language.

Keywords: motivation, gender, foreign language, grade level, achievement, correlation.

1. Introduction

Gender plays an important role in an individual's life. It shapes the entirety of the experience at all levels. It is the key descriptor of every person. There is abundant research that proves the significant relationship between gender and abilities (Woolfolk, 2014). Gender is a classic and significant predictor in educational, psychological and linguistic research (Catalan, 2003). That is why every research into the abilities to learn a foreign language has to take into account gender as

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an important independent variable. Motivation represents one of the key success factors in all kinds of human activities. Numerous experts testify to the fact that motivation is an extremely important factor in the learning process, including foreign language learning (Dörnyei, 1990; Dörnyei & Ushioda, 2009; Gardner, 1985, 2001). Motivation is, in fact, a very complex notion encompassing numerous factors.

Knowing the English language can enrich a person's life and open up endless possibilities, including (but not strictly limited to): education, business, networking and relationships. Furthermore, it also contributes to the meeting of different cultures, which in turn helps to develop intercultural communication and cooperation competence. Due to its' global use in nearly all areas of life, English language has a special importance, but it is also a prerequisite for being a successful individual in the modern world.

English teachers must consider gender differences when selecting appropriate teaching strategies and methods. Gender is considered as one of the main factors that influence foreign language learning (Andreou, Vlachos & Andreou, 2005) and ignoring its' effect may lead to the inappropriate creation of learning environments and materials for both male and female language learners. On the other hand, studying the relationship between gender and language learning helps teachers to plan a class accordingly, develop effective strategies (Aslan, 2009), and conduct appropriate in-class activities (Meece, Glienke & Burg, 2006).

This study deals with elements that motivate students to learn English as a foreign language across different age groups and gender. The results of this research substantially contribute to expert literature in this field and help teachers, as well as parents and students, in creating appealing and more favorable conditions for learning English as a foreign language.

1.1. Motivation as an indispensable factor of success in foreign language learning

According to Gardner (1985) motivation consists of three different components: effort, desire and favorable attitudes. When combined, these three factors greatly contribute to the true motivation. Gardner (1985) highlights the importance of desire to achieve the goal, as well as favorable attitudes towards the goal, which result in invested efforts altogether. Dornyei (1994) points out that motivation represents the most significant factor of success. He emphasizes the importance of geographical and geopolitical factors that influence the attitudes and motivation for learning a foreign language (Dornyei, 2002). Balenovic (2011) believes that a foreign language is learned for practical reasons and that instrumental motive will lead to success in learning. A large portion of young learners tend to learn languages out of curiosity, interest or simply love for a foreign language, while on the other hand adults have different reasons for learning foreign languages which tend to be far more pragmatic (Balenović, 2011).

According to Crookes and Schmidt (1991), motivation has been defined as the learner's orientation with regard to the goal of learning a foreign language. When defining motivation in a classroom environment, Julkunen (2001) highlights the situation-specific motivation, which refers to the motivational state in a concrete situation, and the task motivation, which is characterized by organized class activities in the center of student's attention. The research conducted among high school students in Finland emphasized the importance of the class, the classroom environment and the level of the tasks given to the students to solve and which influence the motivation for learning English language (Balenović, 2011). Cooperative learning situations, where students are not divided according to the knowledge while solving the tasks, have yielded the best results, as well as the open-type tasks in which students were more motivated and achieved better results (Balenović, 2011). These findings point out the importance of classroom management and the methodology of teaching and learning. Precisely the teacher is the one who creates the classroom climate which can significantly influence students' motivation through the application of different methods of teaching and learning (Becirovic & Akbarov, 2016). The teacher is the one who can strongly motivate students to learn a foreign language with his/her own actions. However, the learning results will have no significance or will have very little significance if the teacher's methods are not adjusted to the learning styles of the students and if the course content does not meet their potentials or needs.

Questions that inevitably arise when we consider the level of motivation are: why do we learn a foreign language? How much do we actually try to learn it? How long are we truly ready to

persevere in that effort? The fact that learning motivation can vary during the process of learning a language is also evidenced by Dornyei (2005). Types of motivation can also vary during the process of foreign language learning among different age groups (Ghenghesh, 2010; Kormos & Csizér, 2008). Sometimes the extrinsic motivation will dominate, at another time intrinsic motivation will take the lead, but some other motivational components will significantly influence the motivation for learning a foreign language as well. Moreover, the type of motivation can also be changed based on the influence of peers and the environment in general (Matsubara, 2006). Peers are those who have an important influence on attitudes and values of students. Thus, if they are driven by extrinsic values of learning a foreign language, they will certainly affect the group to which they belong. Those values change over time, but also with the change of groups that influence the attitudes and values of the students.

The most successful students in learning a foreign language are those who have positive attitudes towards people who speak the target language, who acknowledge and appreciate their culture and who want to be integrated into their society. Such kind of motivation could only be characterized as intrinsic motivation for learning a foreign language. Oxford (1994) highlights preferential attitudes towards learning a foreign language. Motivation can very often be based on concrete interests and goals, such as passing an exam, finding a job, migration to another country, studying etc. (Shahid & Grami, 2013). Numerous studies confirm that success will be insignificant and inappreciable if there is no motivation for learning a foreign language.

Noels (2001) expands the levels of motivational constructs with a model of intrinsic, extrinsic and integrative orientation, relying on Deci's and Ryan's self-determination theory with the aim of a better understanding of special orientations and their roles in language acquisition. Intrinsic orientation refers to the reasons for learning the second (foreign) language stemming from internal satisfaction and interest for learning which sometimes includes curiosity and the aesthetic component of the experience. With respect to language learning, intrinsic orientation refers to students who enjoy the sound, melody and rhythm of prose or poetry in a foreign language. For example, Noels states a comment by Anglo-American students learning Spanish at the University of California. When asked they learned Spanish, they responded with "The ability of communicating in another language creates a sense of satisfaction in me" (Noels, 2001: 53).

1.2. Gender and learning abilities

During school years and beyond, psychologists find no differences in general intelligence on the standard measures. These tests have been designed and standardized to minimize sex differences. However, the scores on some tests of specific abilities show gender differences (Woolfolk, 2014). The scores of males tend to be slightly more variable in general, so there are more males than females with very high and very low scores on the test. The research also shows that more male students have some sorts of disabilities that may affect learning abilities. But many of these researches neglect the influence of culture, race, and ethnicity (Woolfolk, 2014).

When it comes to specific abilities, according to Kaiser (2006), on average, males have been found to be better than women at certain subjects like mathematics. But, research shows that girls have reached parity with boys in mathematical performance in the United States and some other developed western countries (Woolfolk, 2014). The attitude that males are better at mathematics also causes negative stereotypes regarding females' inferiority in regard to mathematical competence. Such stereotypes may influence females' decision in choosing courses related to math and study programs that do incorporate math. Melanie Steffens and her colleagues (2010) confirmed such stereotypes in her research in Germany. They found that by the age of 9, girls had already developed implicit (out of awareness) math-gender stereotypes.

Emotional conditions play an important role in English language learning and they influence comprehension (Saidi & Al-Mahrooqi, 2012). Females are more sensitive and more capable to comprehend a text or speech full of various emotions such as happiness or melancholy than males. Males are better at understanding language mediums that contain more aggressive emotions such as anger while females tend to be more sensitive and they have a better capacity to comprehend a text or speech full of sadness and happiness than males (Glenberg, 2009). Rachel & Uri (2009) point out the degree of nervousness and fear from negative outcomes. As it has already been mentioned, females tend to experience more intense feelings than males. Consequently, it

significantly affects learning strategies and they have to work as hard as possible to overcome such fears (Rachel & Uri, 2009).

Chan, Spratt and Gillian (2010) conducted research into the influence of self-efficacy on motivation to learn English as a second language. Their research showed that language learners who have high self-efficacy tend to improve their language autonomously more than other learners. However, the results of the latest study contradicted the previous findings, as they show that males who have lower self-efficacy than females tend to develop their language by practicing harder than females outside the classroom (Chan et al., 2010).

2. The present study

The various researches on factors which influence learning English as a foreign language among different age groups represent a very important step towards improving both the teaching and learning strategies as well as the curriculums. Learning the language has its peculiarities, because the abilities to learn a language are significantly determined by factors which an individual cannot control. However, the aim of this research is to determine how gender influences motivation and achievement in learning English as a foreign language. Based on the defined aim of this investigation, the following research questions have been posed:

1. What is the relationship between gender and motivation in learning English as a foreign language?
2. What is the relationship between gender and achievement in learning English as a foreign language?
3. Is there any correlation between motivation and achievement in learning English as a foreign language?

The following null hypotheses have been tested:

H_o1: There is no statistically significant difference in students' motivation to learn English as a foreign language based on gender.

H_o2: There is no statistically significant difference in students' achievement in learning English as a foreign language based on gender.

H_o3: There is no statistically significant correlation between students' motivation and achievement in learning English as a foreign language.

2.1. Participants

The sample consists of 185 students of elementary and high school levels in Sarajevo, Bosnia and Herzegovina. The convenience sampling method has been employed. Since age plays an important role in this research, we have decided to divide students into three different age groups. The sample includes students of the fifth (78) and ninth (35) grade of elementary school and the twelfth (72) grade of high school. The research sample is composed of 78 female and 107 male participants, with the age span from 10 to 18. The mean of age is M=13.74 and standard deviation is SD=3.388. A detailed review of the sample based on grade level and gender is presented in the Figure 1 and the Figure 2.

Figure 1. Number of participants according to grade level

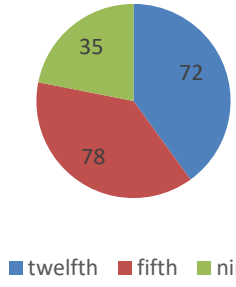
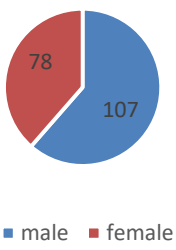


Figure 2. Number of participants according to gender



2.2. Instruments and procedure

In order to collect data on learners' motivation, the questionnaire constructed by Schmidt and Watanabe (2001) has been used. The instrument is composed of two parts: background information and second part items that measure students' motivation to learn English as a second language. The questionnaire consists of 44 statements and a 5-point Likert scale. Students could choose one out of five statements (strongly agree, agree, neutral, disagree and strongly disagree). In this study, the subscales of motivation were intrinsic motivation (α =0.70), extrinsic motivation (α =0.73), personal goals (α =0.81), expectancy control (α =0.74), attitudes (α =0.66), and motivational strength (α =0.78). The questionnaire containing 44 questions was distributed to the students at elementary and secondary schools in the Sarajevo Canton, Bosnia and Herzegovina. The participants were asked to read each statement carefully, to be honest and to provide a response for all the statements in the questionnaire. Participants' achievement was not measured by any specific test for the purpose of this research. The data is based on participants' average mark in the English language course in the regular teaching process, with the minimum mark being 1 and the maximum 5.

2.3. Data analysis

In order to analyze the data gathered from the participants Statistical Package for the Social Sciences (SPSS), version 23.0 has been used. Descriptive statistics in terms of means, standard deviations, and frequencies were performed. Null hypotheses have been tested by inferential tests. Since all assumptions have been met, an Independent samples T-test has been employed. In order to measure the effect size, Cohen's d has been used. A Pearson product-moment correlation coefficient was computed to assess the relationship between motivation and achievement.

4. Results

4.1. Descriptive analysis of motivational components and students' achievement

Research sample is composed of 185 students from elementary and high schools: 78 students of fifth grade (elementary school), 35 students of ninth grade (elementary school), and 72 students of twelfth grade (high school).

Table 1. Descriptive results of motivation

Gender	N	Mean	Std. Deviation
male	107	3.7133	.26938
female	78	3.8383	.18507
Total	185	3.7660	.24489

Students in Bosnian schools are quite motivated to learn English as a foreign language. According to the descriptive analysis, the mean of motivation for all participants is M=3.76 and standard deviation is SD=.24 (Table 1). Descriptive analysis shows greater motivation of female students (M=3.83, SD=.18) than mail students (M=3.71, SD= SD=.26). In table 2 research results of all six motivational components are presented.

Table 2. Descriptive results of motivation based on different motivational components

	N	Range	Minimum	Maximum	Mean	Std. Deviation
Intrinsic motivation	185	2.60	2.20	4.80	3.4876	.48354
Extrinsic motivation	185	1.53	3.20	4.73	3.9452	.38219
Personal goals	185	2.40	2.60	5.00	3.9157	.57125
Expectancy control	185	2.33	2.56	4.89	3.4036	.46257
Attitudes	185	2.50	2.50	5.00	3.5743	.58008
Motivational strength	185	3.17	1.83	5.00	4.0964	.59272

The results show that the largest mean score is at motivational strength component (M=4.09, SD=.59). Students expressed strong interest in learning English in different ways. They also emphasized the importance of English and its' benefits. The participants are more extrinsically motivated (M=3.94, SD=.38) than intrinsically (M=3.47, SD=.57). The lowest mean score has been achieved at expectancy control component (M=3.40, SD=.46).

Table 3. Descriptive results of achievement

Gender		N	Minimum	Maximum	Mean	Std. Deviation
Male	Achievement	107	2	5	4.14	.946
Female	Achievement	78	2	5	4.37	.899
	Total	185	2	5	4.24	.931

The mean score of achievement of all students is M=4.24 and standard deviation is SD=.931 (Table 3). These results show that students are quite successful in learning English as a foreign language in Bosnian schools. The achievement of female students is greater (M=4.37, SD=.89) than the achievement of male students (M=4.14, SD=.94). Such results are expected and foreseen due to the fact that female students show greater motivation in learning English as a foreign language.

4.2. The relationship between gender and motivation in learning English as a foreign language

The first research question focuses on the investigation of relationship between gender and motivation in learning English as a foreign language. The independent samples T-test was conducted to compare the motivation of female and male participants. There was a significant difference in the scores for female (M=3.83, SD=0.18) and male (M=3.71, SD=0.26) participants; t(183)= -3.535, p=0.001. Furthermore, Cohen's effect size (d =0.540) suggested moderate practical significance. These results suggest that gender does have a significant effect on students' motivation to learn English as a foreign language.

Table 4. The relationship between gender and motivational components

	Male			Female			Significance	Effect size
	N	Mean	SD	N	Mean	SD		
Intrinsic motivation	107	3.4972	.50906	78	3.4744	.44908	0.752	0.047
Extrinsic motivation	107	3.8617	.38458	78	4.0598	.34991	0.001	0.538
Personal goals	107	3.7869	.62118	78	4.0923	.44042	0.001	0.567
Expectancy control	107	3.5088	.49855	78	3.2593	.36421	0.001	0.571
Attitudes	107	3.4206	.60227	78	3.7853	.47626	0.001	0.671
Motivational strength	107	3.9626	.63910	78	4.2799	.59272	0.001	0.514

When it comes to the motivational components, the mean scores of female participants are significantly larger than the mean scores of male participants at four components (Table 4): Extrinsic motivation (female M=4.05, SD=.34; male M=3.86, SD=.38; p=0.001, d=0.538), Personal goals (female M=4.09, SD=.44; male M=3.78, SD=.62; p=0.001, d=0.567), Attitudes (female M=3.78, SD=.47; male M=3.42, SD=.60; p=0.001, d=0.671), and Motivational strength (female M=4.27, SD=.59; male M=3.96, SD=.63; p=0.001, d=0.514). These differences are

significant and the effect size is moderate. The mean score of male participants is significantly larger only at Expectancy control component (female M=3.25, SD=.36; male M=3.50, SD=.49; p=0.001, d=0.571). Intrinsic motivation of male participants is also larger but this difference is insignificant and gender does not affect intrinsic motivation (female M=3.47, SD=.44; male M=3.49, SD=.50; p=0.752, d=0.047).

4.3. The relationship between gender and achievement in learning English as a foreign language

The second research question focuses on the investigation of the relationship between gender and achievement in learning English as a foreign language. An Independent samples T-test was conducted to compare the achievement of female and male participants including students from all grades. There was not a significant difference in the scores for female (M=4.37, SD=0.89) and male (M=4.14, SD=0.946) participants; t(183)= -1.679, p=0.095. Cohen's effect size (d=0.25) suggested low practical significance. These results suggest that gender does not have a significant effect on students' achievement in learning English as a foreign language.

Table 5. The relationship between gender and achievement

Grade	Gender	N	Range	Min.	Max.	Mean	Std. Deviation	Sig.	Effect size
Fifth	male	44	3	2	5	4.36	.892	0.001	0.59
	female	34	3	2	5	4.41	.925		
Ninth	male	12	1	3	4	3.50	.522	0.013	0.73
	female	23	3	2	5	4.13	1.100		
Twelfth	male	51	3	2	5	4.10	1.005	0.005	0.59
	female	21	1	4	5	4.57	.507		

An Independent T test was also conducted to compare achievement for female and male participants at each grade level (Table 5). At fifth grade level significant difference was found in the scores for female (M=4.41, SD=0.925) and male participants (M=4.36, SD=0.892); t(66.5)= -2.626, p=0.001, d=0.59. Female students are also more successful at ninth grade. The mean scores for female participants (M=4.13, SD=1.100) is significantly greater and mean score of male participants (M=3.50, SD=.522); t(32.4)= -2.2966, p=0.013, d=0.73. Significand difference was found at twelfth grade too in the scores for female (M=4.57, SD=.507) and male participants (M=4.10, SD=1.005); t(66.5)= -2.626, p=0.005, d=0.59. Female students achieve significantly better results than mail students in learning English as a foreign language at all grades and the effect size is moderate.

4.4. Correlation between motivation and achievement in learning English as a foreign language

The third research question examined if there is any significant correlation between motivation and achievement in learning English as a foreign language. In order to answer this research question Pearson Correlation Coefficient has been employed. There was a positive significant correlation between motivation and achievement in learning English as a foreign language r = 0.295, n =185, p = 0.008. Increases in achievement correlated with increases in motivation.

The first correlation of achievement and motivation of all students is computed then separately for female and male students. In both measures a positive correlation has been found (Table 6). The results show greater and more significant correlation in the female group (r = 0.331, n = 78, p = 0.042.). The correlation in the male group is smaller and insignificant (r = 0.244, n = 107, p = 0.139.). These results confirm greater aspirations of female students to learn English as a foreign language. Actually, female students in Bosnian schools express greater motivation; greater

achievement to learn English as a foreign language and the correlation between their achievement and motivation is larger and statistically significant.

Table 6. Correlation between motivation and achievement based on gender

Gender			Motivation	Achievement
Male	Motivation	Pearson Correlation	1	.244
		Sig. (2-tailed)		.139
	Achievement	Pearson Correlation	.244	1
		Sig. (2-tailed)	.139	
Female	Motivation	Pearson Correlation	1	.331*
		Sig. (2-tailed)		.042
	Achievement	Pearson Correlation	.331*	1
		Sig. (2-tailed)	.042	

When it comes to different age, the correlation between achievement and motivation is the largest and statistically most significant among the youngest students. The analysis shows the following results:

Table 7. Correlation between motivation and achievement based on different grade level

	Fifth grade		Ninth grade		Twelfth grade	
	Correlation	Significance	Correlation	Significance	Correlation	Significance
male	.55	.001	-.325	.303	-.231	.103
female	.45	.006	-.061	.782	-.115	.619

The correlation in both groups is positive and significant and it is the largest among the fifth-grade students (Table 7). Male students have a larger correlation (r = 0.55, n =107, p = 0.001) than female students (r=0.45, n=78, p=0.006) and a statistically significant correlation has been found only at the fifth grade. Surprisingly in both groups, namely ninth-grade and twelfth-grade students, a negative and insignificant correlation has been found. Male students in both groups (ninth r = -.325, n = 107, p = .303; twelfth r = -.231, n = 107, p = .103) showed larger negative correlation than female students (ninth r = -.061, n = 78, p = .782; twelfth r = -.115, n = 78, p = .619).

5. Discussion and Conclusion

Gender is an important factor influencing motivation and achievement in learning English as a foreign language. Males and females are not equal in terms of motivation which, as a result, influences their achievement. The results of this investigation have shown that female students are more motivated to learn English as a foreign language then male students. This difference is significant and the first null hypothesis by which we assumed that there is no statistically significant difference in students' motivation to learn English as a foreign language based on gender is refuted. Female students have shown significantly higher motivation at four motivational components: Extrinsic motivation, Personal goals, Attitudes, and Motivational strength. Male students have had a significantly larger score only in Expectancy control component. They have also achieved a larger score in Intrinsic motivation but this difference was insignificant.

Female students are more successful at learning English as a foreign language but the difference is insignificant for the entire research sample and that is why the second null hypothesis by which we predicted that there is no statistically significant differences in students' achievement in learning English as a foreign language based on gender is supported. But, when it comes to the results separate for each investigated grade level, female students have shown a significantly greater achievement in all groups.

There was a positive significant correlation between motivation and achievement. We hypothesized that there is no significant correlation between students' motivation and achievement in learning English as a foreign language and this null hypothesis is refuted. The correlation between achievement and motivation is larger and more significant in the female

group than in the male group. The correlation between motivation and achievement is the largest at fifth grade (the youngest group of participants).

There may be many plausible explanations for such research results. One of them is the emphasis on learning English as a foreign language from the early childhood in Bosnian educational systems. English is a mandatory course in the early years of formal education and it is an essential part of the curriculums. Students have various opportunities to learn vocabulary, grammar and conversation. Most Bosnian students reach high levels of proficiency until they enroll at a secondary school and this may be the reason why their motivation decreases as they get older. Another possible explanation may be the influence of media and technology on students' learning (Becirovic & Akbarov, 2015). Cartoons, movies and other entertaining children's programs are not dubbed into Bosnian language. During early childhood, children spend a lot of time watching the above mentioned programs that offer them great opportunity to learn a foreign language. This is evident in some instances when Bosnian children ask for the translation of an English word into Bosnian. They would know the meaning in English but not in Bosnian.

The results of this research are similar to the findings of Borenovic (2011). She also found that females are more motivated to learn English as a foreign language. Mihaljevic Djigunovic (1988) also found that female students are more emotionally attached to the foreign language which they learn. When it comes to the influence of age on motivation to learn English as a foreign language, Balenovic (2011) did not find any significant relationship but her youngest group of research sample were 17-year-old participants.

According to Mori & Gobel (2006), males and females differ in general academic motivation and in particular females are more motivated to learn English than males, which might explain their overall superiority in English (Aslan, 2009). The degree of fear and apprehension regarding negative outcomes may also affect motivation. The levels of fear and apprehension vary among males and females, however females tend to experience more emotions than males. As a result, females work as hard as possible to overcome such fears and nervousness (Saidi & Al-Mahrooqi, 2012).

Language learning motivation is also affected by students' attitudes. According to the results of Saidi & Al-Mahrooqi, (2012), males and females do not have the same enthusiasm in learning English. Females are more enthusiastic than males. Since learner motivation affects self-efficacy in learning English, females have been shown to possess more self-efficacy than males.

There could also be some other factors that could influence motivation and achievement in learning English as a foreign language. The inquiry into such factors could be recommended for further research. The variables like the socioeconomic status of family, the number of family members, teaching strategies, personality traits, etc. could have a significant relationships with motivation and achievement in learning English as a foreign language.

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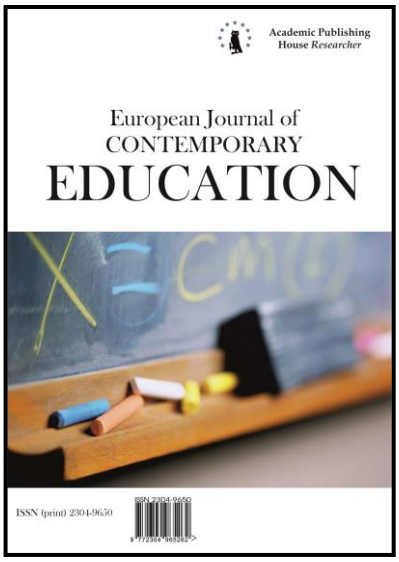

What "Gamification" is and what it's not

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Abstract

What "gamification" means and what it doesn't has been addressed and described by many researchers from a variety of different perspectives in the past. Similarities and differences of the methods between "gamification" and "games" (as well as "gamification" and "game based learning") have also been look upon up until now. However, "gamification" and "game" terms, are still being mentioned as substitutes for one another sometimes in many research articles. Although a mixture of methods are being used nowadays in the whole learning process (e.g. flipped learning together with gamification, mobile learning and infographics etc.), naming the "whole" learning methodology being used in an educational project/research only as "gamification" (or only as a game/GBL) – is yet another common issue that may lead us to misunderstand the gamification concept. These situations may be regarded as problematic issues in understanding the concept of gamification correctly. The number of educators and researchers keeps increasing in the world which are researching and trying to benefit from gamification applications in a variety of disciplines. Some of these disciplines (such as chemistry, health etc.) seems to be more benefitting and being more successful than others in their project states. Evaluating the level of success in various dimensions of learning may also differ from one to another largely in case of mixed learning methods being used in the research. Thus, in cases of using gamification method as well with others in a mixed manner of methods, the low level of success achieved may have been affected by a number of reasons. These reasons and conclusions have oriented the author to establish a research on articles and web resources on "gamificaiton" and its differentiations from "games" and "game-based learning" concepts. The intension is to better understand "gamification", try contribute in drawing a clearer view of "gamification" for educators and researchers who are in the beginning stages of gamification/gamifying applications topic, or are planning to make use of them in the near future. With this perspective, a literature review was done, summerizing and

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commenting on the results which are reflected to this article aiming to clarify what "gamification" is, how it differs from "games" and "game-based learning", familiarize with some successful gamification applications of today (in the education sector), underline how and why it is spreading in various application areas (including education) today and comment on the future of "gamification use".

Keywords: gamification, educational game, learning process, behaviour, application.

1. Introduction

Yıldırım, states that Zicherman and Cunningham (2011) defines gamification as "...changing the way of thinking and using some 'gaming rules' in order to increase the interest of learners and to solve problems". In his study, Yıldırım also tried to summerize what gamification is not(!) by emphasizing that: it is not true to say that gamification exists everywhere in which games does. He writes that "...In the process of gamification, the game design is transferred to non-game environments, and this process itself has now become a game" (Yıldırım, 2016).

According to Deterding (2011), looking to the history of education, "gamification" appears to be a new method that has started to be used in a veriety of disciplines to enhance and motivate learning (Deterding, Dixon, Khaled and Nacke, 2011). Fisher, Beedle and Rouse, (2014), Bruder, (2014) and Fenn, and Lehong, (2011) underlines the differences between "game" and "gamification" concepts, by indicating some partitioning criteria between them when identifying gamification. Definitions such as 'using game mechanisms in non-game applications', 'thinking gameful to solve problems', 'involving all students throughout all of the learning activity in a pedagocial content' and 'using game elements in non-game environments' are most common (Fisher, Beedle, and Rouse, 2014).

Deterding on the other hand, which defines "gamification" as "using game design elements in non-game environments", stresses that it may be sufficient to use only 'some' of the game design elements to implement it. Yet the concept of "gamification" differs from the "educational game" or "real game" cathegories. While "educational games" or simply games is described as 'entertainment or non-entertainment activities using full established game design'; gamification applications, seldomly uses all of the game elements. On the other hand, although gamification term is rather new; the first documentation involving the use of "gamification" term, goes back to 2008's. As an example, it may also be noted that, some gamification elements (such as "badges" and "grades or degrees") were commonly used in the past by the USSR army commanding authorities to motivate soldiers for increasing their learning competencies (Deterding, Dixon, Khaled, and Nacke, 2011).

2. Differences between Gamification, Games and Game Based Learning (GBL)

Bruder (2014), described the differences between "games" and "gamification" by defining gamification as "a non-game activity, which is established via using game principles". Thus, advise is given to readers not to mix or compare "real games" (which has an intention only to teach it's user to succeed only in doing something) with gamification. Gamification, also requires an effort which tries to mix many teaching/learning principles together to accomplish some complex tasks. Since in education, learners usually faces problems according to their sufficiencies and interests; in his study Bruder also identifies gamification as "...using gamified thinking and game mechanics to solve problems and increase, motivate participation". It is also conspicuous to note that, in order to identify an event as a valid "gamification activity", the whole unit or all participating attenders (e.g. all class students) need to be using the game techniques/principles effectively.

Resources such as Teachthought website (2014), also identified "gamification" as "using game like mechanics in non-game applications in order to gain spesific behavioral acquisitions". The Teachthought authors stresses the importance of confusing "gamification" with "game-based learning" in some studies. They describe game-based learning as " simply learning with playing and by playing". Elaborating the gamification concept, they indicate that learning is not accomplished as it happens in a "game-based activity"; but focusing more on mechanisms providing and supporting learning is needed to be considered and mutual interactions be evaluated in gamification. The writers underlines that in gamification applications, students need not have to have toys, electronic devices etc. and not always play games in order to learn.

According to the Turkish Language Association, "game" is defined as "an entertaining activity with certain rules that need be followed; which also helps to improve the intelligence and talents of

the user while having pleasant time" (Türk Dil Kurumu, 2017). But in gamification, "game", is only a tool, an element to accomplish specific targets in any area, which usually is not game oriented.

Even in the literature, in spite of having a lot in common, the game concept is commonly confused with "gamification". Although the history of "games" goes back to the old ages, scientific research that includes the gamification concept is only seen since 2010. A fundamental difference between game and gamification maybe lies in the target of the activity involved. While the main aim of games is to entertain the user, it is to change the attitudes and behavior of the user for gamification. Although these concepts have a lot in common, they are different and should not be confused.

In their research; Kim, Park and Baek (2009) tried to identify the differences between "gamification" and "game based learning". They indicate that in "game based learning" learners arrive to their educational targets by playing games. In learning via playing games, "playing" usually takes the major role in the learning process. But gamification, materializes totally out from the game context. In other words, with gamification, games cannot replace the learning process itself. It helps to make learning a more participating activity and targets more on overcoming the difficulties in learning over time (Codish and Ravid, 2014).

Comparing "gamification" with "game based learning", it can be said that, while with gamification a non-game oriented environment is changed into a game environment by using game principals and game components; with "game based learning" it is intended to teach any subject as a whole or as a module totally by using "games". When using gamification in education; the designed teaching construction is enhanced by using "points", "badges", "level points", "experience points"...etc. and transferring these into the classroom environment. While "game based learning" generally is defined as achieving open or covered learning in game environments (Bozkurt, 2014), gamification also is defined as a learning philosophy being used in non-game applications (Bozkurt and Genç-Kumtepe, 2014).

Using gamification in education, generally focuses on increasing students interest to the lessons, boost the competitive spirit in the class and motivate them to participate in the learning process via using tools such as points, badges, levels and league tables...etc. Gamification components are associated with the students positive behaviours in lessons by the teacher and watched for better participation, good homework habits, and attitudes in keeping necessary tools ready whenever needed. To establish and maintain this; the teacher need to have announce the evaluation method which will be used, before the learning process. After this, the teacher can make use of gamification components in the teaching-learning process, by using points, and badges for rewording, transfer this prize to levels and leader tables (Deterding and fri., 2011).

3. The reasons to use Gamification in learning

Materializing gamification procedures is a rather complex process then just using "points","badges", and "gradings" triad in applications and activities. In most case, using design knowledge and design technologies in expertise level is needed to be successful. Because, the reasons for knowing "why, when, where and how to use gamification in education" needs to be as clear as possible and requires some scientific planning. The results of the applications – supported by gamification- needs to be checked, analized, and possibly new arrangements are needed to be implemented for a better efficacy of the students learning. The research of Leba (2013), on designing a eLab's (-which is also defined as: "gamification embedded virtual laboratory"), sets a good example of integrating gamification elements into the design process (Leba, 2013).

Adopting "gamification" to the changing world needs, recently Mashable website (2017), defines the "(Gamified) E-learning" concept as: "...benefitting from 'story telling', 'badges', 'signs' and 'certificates', in order to motivate, test and provide new opportunities for improvement of the attender". It is believed that, with this tecqnique, it may become easier and more motivating to finish some boring activities (such as filling-in surveys and tax-forms, shopping, reading through web sites).

The leading reasons that came forward for using gamification in learning may be listed as:

- Adopt some boring work to more manageable entertaining ones.
- Transfer hard work procedures to more enjoyable tasks.
- Help to be able to focus more easily

- Increase participation
- Provide motivation and satisfaction in business (Uses and Gratifications Theory)
- Help individuals increase the use of media tools in order to achieve some objectives.
- Help learners to be active more and be allways participating
- Help individuals to be more conscious and able to use media tools easily in order to satisfy their needs.

In Figure 1, the ladder tries to animate these effecting factors in the learning process – with the gamification instruments used to accomplish some spesific tasks and objectives.

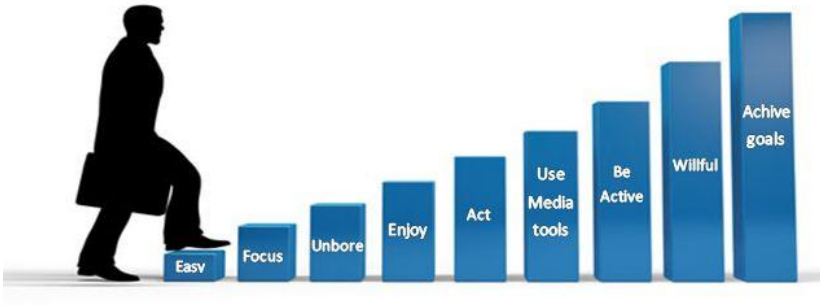

Fig. 1. Gamification ladder (the ladder figure used has been retrieved from http://www.sandipfoundation.org/wp-content/uploads/2015/10/promotion.jpg)

4. Gamification in education today and tomorrow

Nowadays, "gamification" has started to be used frequently in the business world within the marketing, management, health and ecology initiatives. This spreading feature of gamification, arises from its suitable potentials in shaping users behaviour in the right directions. In this context "Foursquare" may be mentioned for shopping, lunch, hotel, and touristic environment searchs, "Nike+" for meeting the sports activity needs/search as successful commitment program examples. "Stackoverflow" (Stack Exchange, n.d.) on the other hand is another application that makes use of getting credits (votes) for giving correct answers to questions.

If we take a look to successful gamification applications in the education sector (for primary and secondary school levels), ClassDOJO stands as a good example. It instantly draws attention of the students to its cartoon characters. The software can easily be used by teachers for recognizing student behaviour and rewarding purposes. 'Avatar's are used to demonstrate students when creating a recorded virtual class. Each avatar can be easily tracked for "active listening" and "paticipating". ClassDOJO also helps teachers, students and their families to have the latest info regarding to the latest state of the educational levels achieved via "reports", "instant-broadcasts" and "both-ways messaging system" provided. By this way, students development can be easily and better tracked. (https://www.classdojo.com).

Quizizz on the other hand, is becoming one of classics of gamification in education. Teachers using Quizizz in their classes, can transfer many starting and repetition tasks into entertaining and largely participated activities. This software enables the teacher to use any browser, prepare his/her own tests and opportunities to examine tests prepared by other teachers. All resources are password free and needs no username to access. In order to participate in a gamified activity, all is needed is a "code" which is announced by the teacher to the students, to get connected to the Quizizz website. When the test is over, a report is sent to the teacher which includes detailed information about the students answers that can be downloaded and saved. Quizizz also has some characteristics that most free gamification supported educational software does not have. For example, since Quizizz is not a teacher oriented application; each student can work with his/her own speed, take individual initiative and make choices. The "teacher panel", provides

excellent real-time data about students as well as simplifying the learning activity planning individually according to each students special needs (https://quizizz.com/).

Another gamification application which is getting popular between teachers and students is Kahoot!. The 2015 figures are indicating that Kahoot users are exceeding the number of 30 millions now (Brand, 2015). Kahoot can be used with any browser and teachers can easily transfer their class activities into games or gamified tests/contests. The use of the "contol-panel" is easy and provides excellent feedback to teachers during and at the end of the games. A point which puts Kahoot to a much superior place then Quizizz is its flexibility of test period adjustments. Yet, if needed, additional opportunities are given to students who wants to continue their game by being able to play in the "ghost mode" and surpass their old grades at home (https://getkahoot.com).

For providing additional exclusive learning experience to students, Knowre sets a good example for mathematics education especially in USA. The advance technologies used by Knowre, helps identifying the gaps in the "learning-difficulty areas" of students; which is then tried to be addressed via the produced programs interactive support. While doing this, Knowre provides an attractive, entertaining and dynamic learining environment for sudents. With the support of partner schools, private educational organisations and companies, Knowre tries to give full support to students. In its progressive awarding system, Knowre makes use of prize coins, stars, appealing graphics, presentations and certifications (http://knowre.com/).

Setting a good gamification software example for level K-12 and above, we see the Socrative. With its handy User's Manual (http://www.socrative.com/materials/SocrativeUserGuide.pdf), it provides benefitial service for teachers and students. Using the gamification items in various functions intelligently, Socrative provides useful opportunities for teachers such as:

a) Preparing tests creation oppotunities (including many question types) for various disciplines
b) Modifying previously made tests (quizes).
c) Being able to manage, import and export these tests.
d) Being able to track the tests online
e) Being able to evaluate the test results and receive reports for it

The students are also able to enter to the "student's section" of the website with their computers, laptops or mobile phones whenever they want. They can join to the tests/games, receive results for their performance and with the aid of the system and teacher evaluations/suggestions regarding to their improvements; can move to different level and cathegories on the system. Using the Blog and Help Menu Options, the teachers and student are also able to reach to the references, resources and previously made dialogs on the website and ask new questions (http://www.socrative.com/).

With an international vision, we see Duolingo coming forward among gamification supported language-learning platforms. The website is very popular, free to use and it even provides an evaluation exam for language competancy level at the end. All language learning courses provided are free at Duolingo. According to the records, since 2016, Duolingo is providing language courses for 23 different languages. The application can be used with iOS, Android or Windows operating system platforms easily. The number of registered users of the software passed the 120 million figure back in 2016 (https://www.duolingo.com/).

Finally, we have to mention Ribbon Hero for using gamification in more official oriented platforms. Although Ribbon Hero is produced by Microsoft's in their laboratories, free of charge and looks like a game; its main aim is to help teach a better use of the Word, Access, Excel and Power Point programs within the Microsoft Office 2007, 2010 and later versions pack much easily and in a gamified environment. In order to achieve a complete competency in using the "menu ribbon" of MS Office, a help wizard which has a "clips figured cartoon animation" is used. When first used; the typing text speed, page design and layout styles, adding figure and picture competencies are tested and related points are collected by the games of the software. Each game, is aimed to achieve and test a different competency characteristic for using the MS Office Program software. For that purpose, a sample document is presented to the user and it is expected to be corrected accordingly. The gamified software checks and tests to see if these re-arrangements are done properly and timely. The games can be played in any order according to the users needs (https://en.wikipedia.org/wiki/Ribbon_Hero).

Using gamification in education is rather new, but its popularity, supporting views to try it and additional benefits, new application areas it may add to the existing methodolgy keeps increasing year after year. Educational websites started to gain ground on this basis as well. Successful educational online websites such as khanacademy, also makes use of gamification and game elements in order to motivate its users and help them to participate more. Users successfully finishing more courses and lessons on this website, gains more badges and receive citations which motivates them for heigher success. Similarly, websites such as eBay (Chou, 2014) and Fitocracy (Crook, 2013), are able to maintain the racing spirit of their users and strengthen the loyalty/connections between them by using elements of gamification.

A comprehensive research was implemented by a group of researher, aiming to analyze the spreading nature of gamification applications in educational and instructional areas (Caponetto, Earp and Ott, 2015). The research covered 120 articles –all related with gamification- published between the years of 2011 and 2014. The study was related to the implemented gamification applications for a number of cases, focusing on criterias such as: "target populations", "study types (theoretical/experimental)", "transferred/obtained educational contents", "measuring instruments used". The results showed that, for a wide scale of age groups (from 5 year olds to adults) and various educational levels (starting from primary schools to university level), the use of gamification methods in learning for students is increasing (as in numbers and in the veriety of application discipline cathegories) throughout the years. The research also indicates that, the "gamification" concept is getting better underestood by educators and implementers within the last years.

5. Conclusion and future work

Apart from the education sector, gamification is starting to be seen mainly in the business world, banking, commerse and health sectors frequently nowadays. Considering the historical process; it is believed that, the most important characteristic of gamification that supports its spreading in use, is its potential to provide extra motivation in achieving goals.

Because of its entertaining structure, using "gamification applications" or gamifying generally motivates and improves the commitment of students towards the lesson activity. They usually have a positive effect on the learning process. Some research has shown that, student groups which are given the opportunity to make use of gamification elements in their learning process, academically performs a better learning performance compared to the groups that are not.

A research study focusing on the "gamification studies in the world" done in 2014 showed that, the majority of these studies reached to the conclusion that the results were successful (Hamari, Koivisto and Sarsa, 2014). Gibson and friends work (2015) on "the use of digital badges in education" too, reached to the conclusion that using these gamification elements encourages students to demonstrate positive behaviors, reveals the progress in the learning and content, and has triggering effects in learning and success (Gibson, Ostashewski, Flintoff, Grant and Knight, 2015).

But these results must not be taken as granted for all cases. Unfavorable results are present too. Hans and Fox's study (2015) which evaluated the effects of gamification in the classroom on students in terms of motivation, social comparison, satisfaction, effort and academic performance; find out that, students using gamification elements in their classes were less motivated, less improved and collected less examination points compared with the classes that haven't used gamification (Hanus and Fox, 2015).

Thus, it can be said that, with suitable gamification software and using strategy, students can become more active and participating for challenging complex and difficult tasks. However, software/tools with gamification contents should be tested and the results (regarding to the performance differences it creates in various steps of the learning activity) should be analyzed thoroughly. For the benefit of a better learning performance; it is always possible to change the characteristics of gamification use and its elements in the projects, through research studies. Looking back to 2010's and reviewing the progress of applications of gamification into education in the recent years, an increasing usage tendency can clearly be seen. "Gamification applications" are getting popular and application areas for gamification are spreading from kindergarten-primary school level up to the university/adult stages in many disciplines. Supported by scientific research for success, this is no coincidence.

In todays world, especially in education, experiencing and using "blended/complex learning methods and techniques" (which involves using many learning methods and tecniques together) are getting popular. Thouse which are proved to be successful and benefitting, then are supported for even more improvements and adoption to other areas. It is believed that, gamification is starting to play an important role within this blended learning application methods, and contributes an important role in the overall success of the learning process.

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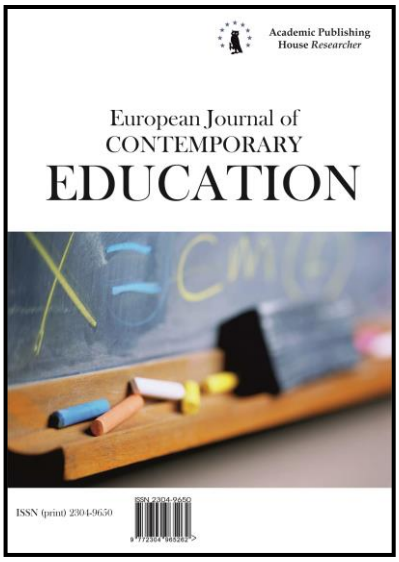

Improvement of Methodology of Teaching Natural Science for Students with Intellectual Disabilities by Means of 3D-Graphics

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Abstract

At the present stage of the development of education of persons with disabilities ways of enhancing the effectiveness of training students with intellectual disabilities undergo active research. One means of improving the efficiency and further upgrading of teaching methods is information technology. The article gives an example of improvement of methodology of teaching natural science through such information technologies as 3D-graphics. The authors assume that including animated 3D graphics in the computer educational technology, increases the level of assimilation of material by students with intellectual disabilities. The authors have developed lecture notes using the designed computer program and test tasks for the Biology course, examples of which are presented in the article. Statistical analysis of the results of testing students after the lesson and of deferred testing in 9 topics of the Biology course allowed to establish that the learning material is assimilated more intensely by students with intellectual disabilities when using 3D graphics in the learning process rather than without using it.

Keywords: methods of teaching science, information technology, 3D-graphics, control of knowledge, students with intellectual disabilities, biology lesson.

1. Introduction

Nowadays, a wide variety of information technologies are used in educational institutions to facilitate more effective learning (Bobrova & Likhacheva, 2013; Bouck et al, 2009; Garkusha, 2004; Hasselbring & Glaser, 2000; Kremer, 2004; Korolevskaya, 1996; Kukishkina 1996; Kwon, 2012; Melnikova, 2012). Teachers of correctional educational institutions actively implement existing

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computer technologies in the education of children with disabilities (Gorina & Makhotina, 2013; Glumova, 2011; Kol'tsova, 2011).

Researchers have developed and continue to develop computer programs and educational computer games for children with intellectual disabilities, that contribute to the improvement of learning motivation, help to acquire and retain new knowledge in various subject areas (Borblik & Shabalina, 2015; Renzhiglo & Voynov, 2010; Lifanova & Podvalnaya, 2010; Greshnikova, 2013; Lanyi et al, 2012; Kwon, 2012). Scientists in the sphere of Special Education note the need for the use of information technology in teaching students with intellectual disabilities due to the fact that these technologies are most adaptable to the individual needs of children of this category, help solve correctional and educational tasks in various subject areas of Special Education (Lifanova & Podvalnaya, 2010; Klyputenko, 2009; Kwon, 2012; Bouck et al, 2009; Kovalenko & Privalova, 2015; Mekie et al., 2015; Perera et al., 2014).

J. Kwon's studies (2012) found out that computer games have a common strategy with the traditional educational technologies which are used by teachers in Special Education: the presence of feedback, the practice of repeating material to attract students' attention through visual signs and auditory signals, motivation by sustaining success and individual approach. Analyzing the research of the use of computer programs in correctional education, J. Mekie and her colleagues (2015) noted that the use of information technology is rather effective in teaching students with intellectual disabilities. However, the authors' analysis of computer programs for children with developmental disabilities such as intellectual disabilities, autism spectrum disorders, leads to a conclusion that a more careful analysis of the deviations in the specifics of the development and taking into account individual characteristics of each child are required. The authors also discuss the question of what should be the degree of incorporation of information technology in the educational process of students with special needs, and to what extent they are compatible with the traditional forms of training, what should be the degree of intervention of the teacher in the learning process based on information technology. Testing a computer program developed by the authors, and its use in teaching pupils with intellectual disabilities and autism spectrum disorders showed that the audio-visual educational material helps to make learning easier for children and increases its effectiveness. However, J. Mekie (2015), E.C. Bouck and their colleagues (2009) note the lack of investigation of the influence of various computer technologies on the effectiveness of training pupils with disabilities in different school subjects. Some researchers also point out that the same computer technologies have different effects on different groups of children depending on the form of developmental disorders, so the effectiveness of the impact will also be different (Bouck et al., 2009; Main et al., 2016). We believe that the uncertainty in the responses to questions about the effectiveness of computer technology in teaching children with disabilities in general, and the nature of the impact of computer technology on the efficiency of teaching children with different variants of impaired development, in particular, is due to the intensive development of computer technology and the advent of a large number of software development, on the one hand, and the paucity of studies aimed at identifying the effects of these programs on learning processes, on the other hand. The teachers' attempt to introduce computer technology to the educational process without experimental verification is an intuitive search for effective methods of teaching, which is not always justified.

Traditionally in Russian correctional schools teaching children with intellectual disabilities, biology lessons are held with the active inclusion of visual material. Used as visual aids are 3-D objects (natural objects, models), and two-dimensional ones (figures, tables, and other schemes). In recent years, in order to explain the teaching material teachers of correctional schools apply computer technology as well, by which two-dimensional objects are demonstrated, as a rule. The use of such a demonstration is due to both the reduction in resource costs of their production and use, and the fact that the visibility of the objects displayed via computer means, are more attractive for students with intellectual disabilities than traditional ones. The use of computer tools in teaching children of this category is also justified by the fact that their educational and cognitive activity is characterized by the lack of development of higher forms of perception, visual thinking, resulting in incomplete, fragmentary notions of objects and environmental phenomena of reality, inability to operate with these notions (Vorobyov, 2014; Lifanova & Podvalnaya, 2010; Meleshkina, 2016; Melnikova, 2012; Kukishkina, 1996; Klyputenko, 2009; Lanyi & Brown, 2012; Hasselbring &

Glaser, 2000). In addition, the material of some subjects, such as biology, requires mandatory visualization of information.

3D-technology in education

We are interested in the use of 3D-technology in education. The analysis of scientific literature has shown that the set of such technologies is limited. 3D-technology is often used to study human anatomy in medical schools (Azer, Azer, 2016; Nikonorova, 2013; Ratova et al., 2012). S.A. Azer and S. Azer noted that the spatial visualization of the anatomical structure of the human with the use of 3D-technology is required for teaching of the discipline and allows students to understand the dynamic aspects of the functioning of organs and systems. Rotating and manipulating studied objects in different positions further contributes to their proper identification regardless of the angle both in a two-dimensional or three-dimensional space. In addition, this presentation of educational material allows students to see the relationship between different anatomical structures in space, as a three-dimensional computer modeling simulates the real world, and calls for increased spatial visual thinking ability.

Taking into account the educational and developmental opportunities of 3D-technology, researchers began to test them to teach people with intellectual disabilities. One example of this is a study aimed at studying the influence of 3D-graphics on social adaptation, but it relates to adults with intellectual disabilities (Lanyi et al., 2012). There are few investigations that reflect the study of the impact of 3D-graphics on the efficiency of the training of pupils of correctional schools. There may be mentioned a study conducted in Singapore by K.H. Ang and Q. Wang (2006), aimed at identifying the efficiency of 3D-graphics application in the study of astronomy (theme “Solar System”), which showed that the use of such computer technology enhances students' interest in the studied material. This result, from the scholars’ point of view, is achieved due to the fact that the children find themselves inside the three-dimensional space (thanks to the possibilities of 3D-graphics) their attention is drawn to animation, sound effects used in the program. The researchers note that the previously boisterous, unrestrained children have become more patient, ceased to miss lessons and be late for them, and actively discuss the content of the material after school.

So, today attempts are made to develop computerized programs for the education and socialization of children and adults with intellectual disabilities, including 3D-graphics, which help to more productively solve the problems of their training and forming their skills. However, the sphere of subject teaching of this category of students, their acquisition and consolidation of knowledge in certain school subjects, is still inadequately developed, which inevitably raises the question of improving or supplementing the methodology of teaching school subjects with the help of new work tools. In this case, such a tool of computer technologies, as 3D-graphics can be taken into account.

2. Method

We hypothesized that an effective way to improve the methodology for such a subject area as natural science, which makes it possible to increase the level of acquisition of knowledge by students with intellectual disabilities, will be including in the computer educational technology animated 3D-graphics, aimed at demonstrating the structure and functioning of the organs and systems of the human body. We decided to check this assumption in biology class (“Man” section) in the study unit “Musculoskeletal system. Skeleton”. Checking the effectiveness of this technology will also make it appropriate to develop 3D-products for the acquisition of other sections of biology, as well as raise the question of the application of this technology in the study of other school subjects in the special school, such as geography and technology.

In order to establish the differences in the results of students’ immediate and delayed testing of the studied material, we used the Mann-Whitney test.

Features of the developed computer technology

Computer technology that we have developed using Adobe Flash and tools like “3D-modeling”, “3D-animation”, “rigging”, allows students with intellectual disabilities to perceive three-dimensional objects (skeleton and its parts) in 3D-format and differs from the traditional perception of a three-dimensional object (skeleton) in the following ways:

1) in accordance with the algorithm of learning of the educational material the developed computer technology breaks the object of perception into larger (the skeleton of the head, torso, limbs skeleton) and smaller (parts of the skull, vertebrae and their parts, parts of the chest, and others.) parts, which enables the students to systemically and meaningfully acquire educational material;

2) it takes into account the dynamics of the learning process of the pupils by regulating the movement speed of the image and its elements on the screen, repeated demonstration of the object, its movement in the same sequence;

3) it helps compensate for lack of educational and cognitive activity of pupils due to the fact that the objects exhibited by a computer are more attractive to them.

The program is designed for the use in biology classes in a correctional school with the demonstration of 3D-objects on the interactive whiteboard. In accordance with the program content the computer technology includes such topics for study as: "The structure of bones", "Bone connection", "The structure of the skull", "Torso skeleton", "Limbs skeleton". The computer program includes both static and dynamic objects. Thus, the program provides for the possibility of the axial rotation of the skeleton and its parts – the skull, spine, limbs and their parts. All the elements of the objects depicted have inscriptions and are sounded when the cursor points to them. In addition, to attract the students' attention to one or another part of the object under study, this part is displayed when you point the cursor to it. During the study of the theme "The skeleton of the head": when you hover over parts of a three-dimensional image of the skull, they become brighter, there is an inscription in the form of strips, which is announced ("nose", "cheek-bone", "part of the temporal lobe", etc.). At any axial rotation of the object the selection of the desired portion of the object under study is maintained.

The program provides not only the possibility of introducing the material to the students, but also ways to consolidate and control the acquisition of knowledge. Thus, at the stage of the teacher's control of the mastery of knowledge inscriptions and sounding can be deactivated by pressing a special button on the interactive menu screen.

Sample lessons using computer technology. Here is a fragment of the lesson of biology using the developed computer program on the theme: "The skeleton of the head" the purpose of which is the formation of the notion of the structure of the skeleton of the head and the connection of its bones.

The teacher switches on an interactive whiteboard, enters the computer program menu "Musculoskeletal System», and then the submenu "skeleton" and then – the submenu "The structure of the skull". On the interactive whiteboard appears a three-dimensional image of the skull. The teacher begins the explanation of the new theme, accompanying his speech with questions aimed at consolidating the basic concepts and knowledge on the topic by the students.

"Under the skin and muscles of the head is the skeleton of the head, which is called" skull "(the teacher clicks on the arrows on the screen to the left and right of the image of the skull, showing the skull from all aspects). What is the name of the skeleton of the head? The bones of the skull are arranged very close to each other. Remember the name of such a bone connection (fixed connection). The skull distinguishes 2 divisions - the brain and face divisions. Which divisions are discriminated in the skull structure? Let's name the bones of the brain skull division (the teacher hovers over a particular part of the three-dimensional skull image, it becomes brighter, there is an inscription in the form of strips, which is sounded, and the students repeat these names: the frontal bone, the parietal bone, the occipital bone, the temporal bone). Please note that there are paired bones in the brain skull division: two parietal and two temporal bones (the teacher again turns the three-dimensional image of the skull with the cursor, indicating the paired bones). What are the names of the paired bones of the brain skull division? Why do you think this division of the skull is called the brain? That's right, the bones of the brain skull division protect the brain from damage. So, the bones of the brain skull division have fixed connection. What danger do you think it would be for a human being if the bones of the skull had a mobile connection? Why? "

Study Participants

In order to test the effectiveness of the developed computer educational technology and the expediency of introducing 3D-graphics in methods of biology teaching, we conducted pedagogical testing, which was organized with students with intellectual disabilities in a correctional school that

had a special education program approved by the Ministry of Education and Science of the Russian Federation (Voronkova, 2011). The study involved 10 15-16-year-old students with the conclusion "F 70 mild mental retardation", 9th graders of correctional school № 59 in Ufa, Russian Federation. According to the International Classification of Diseases, children with the conclusion "F 70 Light mental retardation" are characterized by low cognitive abilities (IQ ranging from 50 to 69) and reduced social functioning (International statistical, 2008). This group of students worked on the program with the use of 3D-graphics. Testing was conducted at the end of each lesson (Quality Control of Learning immediately after its acquisition) and at the beginning of the next lesson (delayed check of the material learned).

Examples of tests

Each test version included 5 assignments. We used the following test assignments of closed type:
1) alternative choice (valued at 1 point)
2) multiple-choice (2 points);
3) classification (3 points);
4) correspondence (3 points).
The maximum possible number of points for each test was 8 points.
Here are some examples of each of the test assignments (Figure 1-4).

Select 2 parts of the musculoskeletal system (circle one correct option of the answer):
a) skull and limbs;
b) clavicle and scapula;
c) skeleton and muscles;
d) no correct answer.

Fig. 1. Alternative choice assignment

Select the bones related to the facial division of the skull (circle the corresponding numbers in the picture):
a) frontal;
b) nasal;
c) lower jaw;
g) occipital;
d) malar.

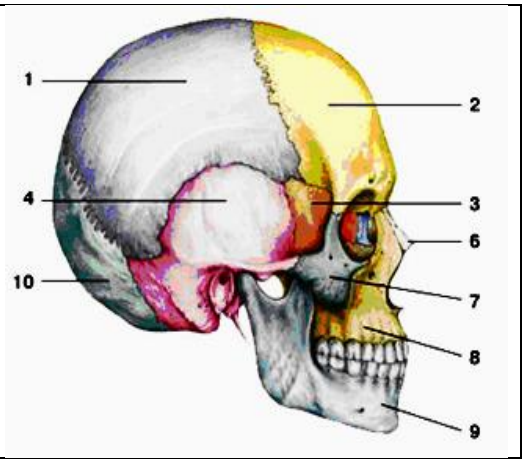

Fig. 2. Multiple choice assignment

Group limb skeletal parts into those relating to the skeleton of the upper limbs, and those relating to the skeleton of the lower limbs. Enter their names in the blank squares:
Hip bone, collarbone, foot bones, the ulna, humerus, femur.

The skeleton of the upper limbs	*The skeleton of the lower limbs*

Fig. 3. Classification Assignment

Use arrows to connect the names of the skeleton divisions and the parts that apply to them:

Skeleton head	
Torso skeleton	
Limb skeleton	

Fig. 4. Correspondence assignment

The results of the test items were analyzed by means of:

1) comparing the data obtained from the control of knowledge on the same theme at different stages – immediately after the learning and delayed;

2) comparing the results of the acquisition of knowledge of the topics that were studied with 3D-graphics and without.

Figure 5-6 are graphs of the dynamics of students with intellectual disabilities' acquisition of educational material on nine themes:

1) "Cell structure";
2) "Chemical composition of cells";
3) "Tissues. Organs";
4) "System of organs. The body";
5) "Bearing and motion. The value of the musculoskeletal system";
6) "Composition and structure of bones";
7) "Skeleton of the head";
8) "Torso skeleton";
9) "Skeleton of the limbs".

Lessons №№ 1-4 were conducted without 3D-graphics and lessons №№ 5-9 with the use of this means.

3. Results

Figure 5 and Figure 6 show the results of comparative analysis (median, minimum and maximum scores) of testing students after the lesson and through delayed testing on 9 topics of the course of biology.

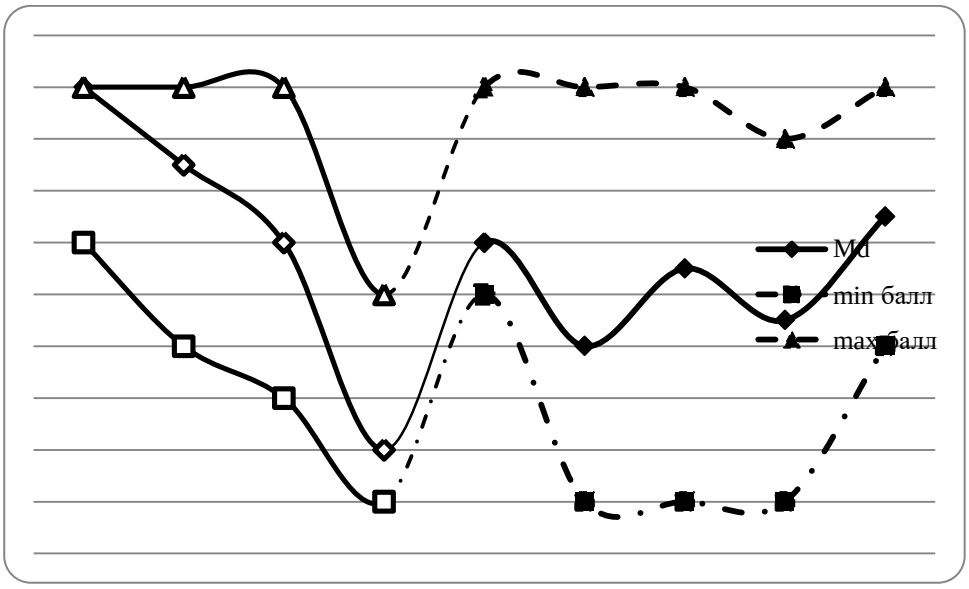

Fig. 5. Dynamics of test results of the acquisition by students with intellectual disabilities of educational material under the heading "Biology" immediately after the digestion (after the lesson)
Note. Md – median, min score – minimum result of testing, max score – the best result for the test; numbers of the lesson themes: 1 – "Cell structure", 2 – "Chemical composition of the cell", 3 – "Tissues. Organs", 4 – "System of organs. The body", 5 – "Bearing and motion. The value of the musculoskeletal system", 6 – "Composition and structure of bones", 7 – "Skeleton of the head", 8 – "Torso skeleton", 9 – "Skeleton of the limbs".

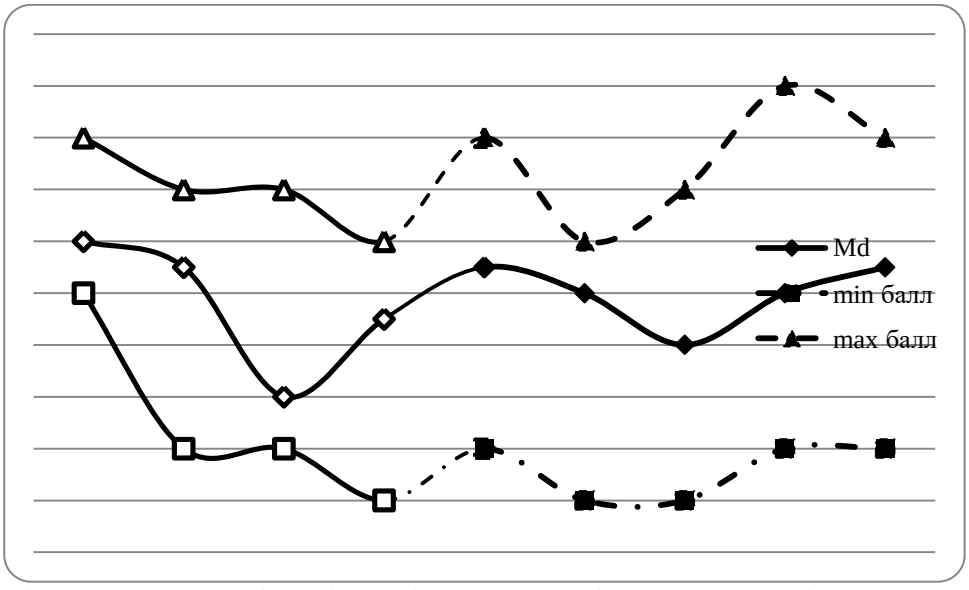

Fig. 6. Dynamics of the delayed test results of the acquisition by students with educational disabilities of educational material under the heading "Biology" (at the next lesson)
Note. See the note on Figure 5.

The results shown in the graphs make it possible to see the differences in the dynamics of the students' acquisition of the lesson material immediately after the lesson and in a delayed mode (at the beginning of the next lesson as testing the mastery of the material studied at the previous lesson). In order to establish the effectiveness of learning, we presented the results of pupils'

testing in both cases on the topics in which computer technology with 3D-graphics was not used (1 to 4 lessons) and in which it was applied (5 to 9 lessons). Graphic data enable us to see a gradual decline in test results in the traditional classroom, while beginning with the very first lesson (lesson 5) based on the computer technology we have developed there is an increase of all indicators – median, minimum and maximum scores of the test results. It should be noted that the effectiveness of the tests, conducted immediately after the lesson, is higher than that of those done at the next lesson, which corresponds to the specifics of the cognitive development of students with intellectual disabilities, that is, they are characterized by low capacity for long-term memorization. The average trend of the test results is characterized by significant jumps from higher to lower, and vice versa, at each subsequent lesson. Besides the test results shown in Figure 8, indicate a considerable variation of the minimum (from 0 to 5 points), and the maximum score (4 points with a predominance of 8 points).

Delayed test results (Figure 6) of students with intellectual disabilities have lower median values, the range of the minimum (the dominant point 1) and the maximum scores (dominated by 6 points and 7) becomes more stable. The mean values of the test results are characterized by a slight tendency to increase. The above suggests that the use of computer technology in the classroom, including 3D-graphics (under the heading "Musculoskeletal System. Skeleton") enhances the effectiveness of the acquisition by students with intellectual disabilities of the educational material, its better memorization in terms of learning stability.

We supposed that the differences in the results of immediate and delayed testing are an indicator of lower efficiency of students' assimilation of the material, because it means a rapid loss of learned knowledge, short-term memorization of the material given in class. The absence of significant differences will, on the contrary, make it evident that computer technology contributes to a better, in our case, more durable learning (Table 1).

Table 1. Statistical data of the differences of the results of immediate and delayed testing of students with intellectual disabilities (Mann-Whitney U criterion)

Lesson topics	Rank Sum (testing immediately after the lesson)	Rank Sum (delayed testing)	U	p-level
1. Cell structure	**147,50**	**62,50**	**7,50**	**0,01**
2. Chemical composition of cells	**135,00**	**75,00**	**20,00**	**0,05**
3. Tissues. Organs	**137,00**	**73,00**	**18,00**	**0,01**
4. System of organs. The body	**70,50**	**139,50**	**15,50**	**0,01**
5. Bearing and motion. The value of the musculoskeletal system	121,50	88,50	33,50	insignificant
6. Composition and structure of bones	110,00	100,00	45,00	insignificant
7. Skeleton of the head	119,50	90,50	35,50	insignificant
8. Torso skeleton	96,00	114,00	41,00	insignificant
9. Skeleton of the limbs	127,00	83,00	28,00	insignificant

The data presented in the table helped reveal the differences in the test results of students with intellectual disabilities on the topics of lessons, which were carried out without the use of such means of computer technology as 3D-graphics: "Cell structure" ($U = 7,5$; $p<0,01$), "Chemical composition of cells" ($U = 20,0$; $p<0,05$), "Tissues. Organs" ($U = 18,0$; $p<0,01$), "System of organs. The body" ($U= 15,5$; $p<0,01$).

4. Discussion

Thus, our assumption is confirmed in respect of all the themes studied. The presence of differences in the parameters “Cell structure”, “Chemical composition of cells”, “Fabrics. Bodies”, “Body System. The body” indicates that the knowledge acquired by students in biology class without 3D-graphics is not sufficiently sustainable and lost by the next lesson. On the other hand, the absence of differences in the parameters such as “Bearing and motion. The value of the musculoskeletal system”, “Composition and structure of bones”, “Skeleton of the head”, “Torso skeleton”, “Skeleton of the limbs”, testifies that the study material, which was given to the students through 3D-graphics, is quite firmly mastered by them.

The teacher’s observations of the students with intellectual disabilities’ behavior in the classroom and outside also show positive effects from the use of computer technology developed. Thus, the students’ interest in the subject under study has increased, the evidence to which is the reduction of non-attendance of biology classes, pupils’ reprobation of those classmates who are late for biology classes. Improvement of the students’ cognitive activity is evidenced by the fact that they are more likely to ask the teacher questions about the lesson, express surprise at the facts reported in biology classes, ask the teacher to carry out all subsequent lessons using this computer technology. Increased comprehension of the academic material is demonstrated through students’ judgments, which they started making in connection with viewing animations and teacher’s explanations.

The impact on the educational and cognitive activity of students with intellectual disabilities by means of computer animation with the use of 3D-graphics was undertaken eventually to increase the effectiveness of teaching methodology aimed at the assimilation of such a complex area of knowledge, as natural science.

5. Conclusion

Methods of teaching any school discipline require constant improvement. Today, one of the means of such improvement is the inclusion in the educational process of various computer technologies, including those with the use of 3D-graphics.

Being included in the educational process of the correctional school, the computer program developed by the authors will help to optimize the process of assimilation of scientific knowledge by students with intellectual disabilities. It takes into account the peculiarities of perception and learning of children with intellectual disabilities and complement (not replace) traditional means of explaining educational material in the classroom. The developed computer technology is correlated with the program content for the academic subject “Biology” (see “The Man”) and completely controlled by the teacher.

The computer program makes it possible to repeatedly return to the studied material. The teacher can use it not only to explain the new material, but also to consolidate it, which is an important argument in favor of its use for teaching students with intellectual disabilities, whose memory is characterized by fragile and incomplete retention of material, rapid loss of what has been learned. In addition to the possibilities of explaining and consolidating educational material, the program can also be used as a tool for monitoring the assimilation of the material by using commands to mute and switch off popup labels.

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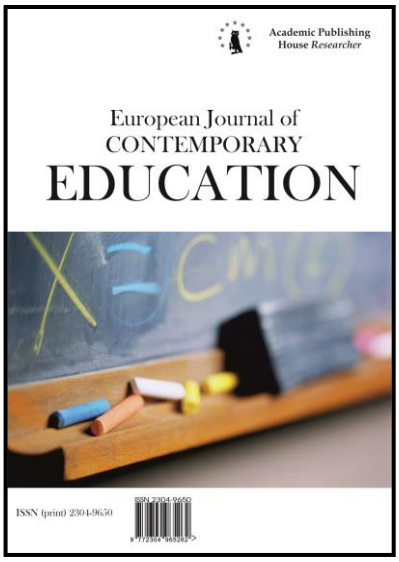

Mathematics Test, Numerical Task and Mathematics Course as Determinants of Anxiety toward Math on College Students

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Abstract

The aim of this study was to determine the variables that explain the anxiety towards mathematics in college students. For this purpose, we used the scale RMARS that integrate 25 items. The sample is non-probabilistic by convenience and the questionnaire was applied to 100 student's enrollment in the *Instituto Tecnológico de Veracruz* (ITVER). Exploratory factorial analysis with component extraction was used for data measurement. The internal consistency of the test was α=0.911. The Bartlett's test of Sphericity with KMO (0.857), chi-square test X^2 with 276 *df* (1404.084) and significance p < 0.000 as well as the values of MSA tending to 1, show a significant result that allow us reject null hypothesis Ho. The percentage of the 65.62% variance is explained by five components. The result shows that anxiety in the ITVER students is explained by a five factors model and not by the tridimensional model as stated by Richardson y Suinn.

Keywords: mathematics test anxiety, mathematics course anxiety, numerical task anxiety.

State of the Literature

Knowledge and information on mathematics are essential to developing skills of students.

In the literature has been documented the redesign of the RMARS scale by Alexander and Martray (1989) that integrates 25 items, which is derived from the 98 elements of the seminal scale of Richardson and Suinn (1972), which integrates three factors or dimensions oriented to math tasks, math courses and math exams.

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Contribution to the Literature

- The main finding shows that anxiety in students is explained by a five-factor model and not by the three-dimensional model as indicated by Richardson and Suinn.
- The components obtained show that students generate anxiety when mathematics is associated with exams, mathematical problems to be solved, thinking about pre-test temporality, math books and listening to math topics.

1. Background

The topic of mathematics teaching process has become a regular theme in the academic speech; from the student´s performance that causes failure levels and desertion as consequence to the preparation of professors who teach economy and mathematics subjects, but it is even more alarming the hard data shed by PISA indicators.

The Organization for Economic Cooperation and Development (OECD) implements every three years since 1997 the Program for International Student Assessment (PISA) where member and non-member countries of the Organization participate, Mexico being one of the countries incorporated in 2000.

The PISA test evaluates the student´s competence in three specific subjects: Mathematics, Science and Reading. Each year in the application of the test, one of the subject is accentuated, an example of this is Mathematics in 2012, Reading in 2009 and Science in 2006, to mention a few. The assessed student´s age is around 15 years, which is the transition age between middle school level and high school.

But what is the aim of this test? or rather, what is sought by the educational systems of the 60 countries that participate? Regarding that matter, it is pointed out that the PISA test seeks to identify the competence level of the student in the above mentioned subjects and therefore, being able to develop educational policies that favor the acquirement of skills and competences that the student requires an that will be needed in the job context (local and international) where he/she will enter after the culmination of his/her studies.

1.1. Recent background

In the International Business Time web page on the "Education" section there is an article that stands out, written by Lluvia Gabriela (August 30th, 2012) and called "Mexico failed in Mathematics and Spanish: Enlace". This article refers to the Enlace test, which places 9 million students in a low range of Mathematics and Spanish scores, meaning that in Mexico, education got a low score on the subjects of Mathematics and Spanish in the last six years.

This is an alarming fact if we consider that Mathematics and Spanish language skills, as well as what derives from them, is closely linked to the daily life of every human being and if add to that fact that the scholar reaches a college level to study a professional career, as it is in this case our study subjects, then more than worrying we need to address the issue.

The exact fact is given by the National Evaluation of Academic Achievement in School Centers (Enlace for its acronym in Spanish), which points out that 75.5 % of the children and young students from Elementary and Middle schools have an insufficient score in the subjects of Mathematics and Spanish (9 million students).

In the specific case of mathematics, 67 % of Elementary school students attained insufficient results and 87.7 % of Middle school students are placed on a marginal level of mathematical skills insufficiency. However, the former Secretary of Public Education -at the end of president Calderon term- José Ángel Córdova Villalobos, referred in the presentation of these results that Mexico "is going in the right direction", despite the worrisome results.

But then again, the subject is open to debate and inside the college education institutions the following questions arise: how do new students arrive to college to study a career from the Economic-Administrative area? What level of competence does the student of an Economic-Administrative career have?, all this regarding mathematics competence and skills of the student. It must be reminded that because of the profile of the Economy-Management area, the careers include in their curricula subjects related to Mathematics, hence a justified query arises and because of that, it is sought to know if anxiety is present in the scholars that study Mathematics; therefore, the research question, objective and hypothesis are:

1.2. Question, objective and hypotheses.

Is there a set of variables that explain the anxiety towards Mathematics on college students?

1.3. Objective

The aim of this study was to identify the variables that explain the anxiety towards Mathematics that manifests on college students.

1.4. Hypotheses

Hi: There is a set of variables that explain the anxiety towards Mathematics that manifests on college students.

2. Literature review

Interest in mathematics anxiety started with the observations of mathematics teachers in the early 1950s. In 1957, Dreger and Aiken introduced *mathematics anxiety* as a new term to describe students' attitudinal difficulties with mathematics. They defined it as "the presence of a syndrome of emotional reactions to arithmetic and mathematics" (p. 344). Notwithstanding the difficulties in defining and measuring mathematics anxiety (Wood, 1988), several attempts have been made to assess it. Atkinson (1988) described three distinct periods in the measurement of mathematics anxiety. In the first period, most studies were merely the authors' opinions and did not employ any standardized mathematics anxiety measures. During this period, an awareness of anxiety about mathematics arose and mathematics anxiety was being defined (e.g., Gough, 1954).

Next, studies focused on the assessment of attitudes toward mathematics through surveys that included several variables such as state-trait anxiety, confidence, enjoyment, and misconceptions (e.g., Dutton & Blum, 1968). The third period saw the development of standardized mathematics anxiety instruments. Dreger and Aiken developed the first instrument, the Number Anxiety Scale, in 1957. Afterwards, more comprehensive scales such as the Mathematics Anxiety Rating Scale (Richardson & Suinn, 1972), the Fennema-Sherman Mathematics Attitudes Scales (Fennema & Sherman, 1976), the Anxiety Towards Mathematics Scale (Sandman, 1980), and the Mathematics Anxiety Questionnaire (Wigfield & Meece, 1988) were developed. Even though the Mathematics Anxiety Rating Scale (MARS; Richardson & Suinn, 1972) is one of the most extensively used mathematics anxiety instruments, Alexander and Martray (1989) reported two major shortcomings. The first is that it is a long assessment instrument (98 items), time-consuming to administer and to score. However, the Revised Mathematics Anxiety Rating Scale (RMARS; Alexander & Martray), developed from the original MARS, has only 25 items.

In a more recent attempt to develop an abbreviated version of the MARS, Suinn and Winston (2003) investigated the previous studies that attempted to shorten the original MARS (e.g., Levitt & Hutton, 1984; Rounds & Hendel, 1980; Plake & Parker, 1982; Alexander & Martray, 1989) and generated 30 items from Alexander and Cobb (1984), Alexander and Martray, and Rounds and Hendel. The rules Suinn and Winston used for inclusion were that an item should (a) be found as an important factor in at least two of the studies or (b) show the highest loading among factors in at least one of the studies. The 30 collected items were subjected to a principal components analysis with oblique rotation, and two factors that emerged accounted for 70.3 % of the total variability in the MARS items. Mathematics Test Anxiety accounted for 59.2 % of the variance, whereas Numerical Anxiety accounted for 11.1% of the variance.

Extensive research has been done on the MARS and its psychometric properties (e.g., Camp, 1992; Capraro, Capraro, & Henson, 2002; Dew, Galassi, & Galassi, 1984; Resnick, Viehe, & Segal, 1982; Richardson & Suinn, 1972; Rounds & Hendel, 1980; Strawderman, 1985; Suinn & Edwards, 1982). However, the second, and more important, shortcoming of the instrument is that the proposed underlying construct of the MARS is unidimensional (Richardson & Suinn, 1972; Suinn, Edie, Nicoletti, & Spinelli, 1972). Nonetheless, more recent studies have revealed that there may be more than one underlying construct in mathematics anxiety (e.g., Alexander & Cobb, 1984; Alexander & Martray, 1989; Brush, 1981; Ferguson, 1986; Plake & Parker, 1982; Resnick et al., 1982; Rounds & Hendel, 1980; Satake & Amato, 1995).

Ling (1982) investigated the validity of mathematics anxiety as a multidimensional construct and found six factors (i.e., Personal Effectiveness; Assertiveness; Math Anxiety; Outgoingness; Success; and Dogmatism) that accounted for 76% of the total variance. Bessant (1995) revealed that 43% of the variance in the MARS scores was explained by six factors: General Evaluation Anxiety, Everyday Numerical Anxiety, Passive Observation Anxiety, Performance Anxiety, Mathematics

Test Anxiety, and Problem-Solving Anxiety. Kazelskis (1998) investigated the factor structure of the three most widely used mathematics anxiety scales: the RMARS (Alexander & Martray, 1989), the Mathematics Anxiety Questionnaire (MAQ; Wigfield & Meece, 1988), and the Mathematics Anxiety Scale (MAS; Fennema & Sherman, 1976).

When an exploratory factor analysis, with a principal-axis component analysis and oblique rotation, was applied, the results revealed six dimensions of mathematics anxiety, which accounted for approximately 61% of the total variance. These six dimensions were Mathematics Test Anxiety, Numerical Anxiety, Mathematics Course Anxiety, Worry, Positive Affect toward Mathematics, and Negative Affect toward Mathematics. Kazelskis also pointed out that because "Numerical Anxiety appears to be distinct from the other dimensions... it could be argued that anxiety as a result of the manipulation of numbers is the *sine qua non* of mathematics anxiety" (p. 631).

The RMARS, on the other hand, is a mathematics anxiety instrument that assumes the multidimensionality of the construct. There are three subscales of the RMARS to measure the amount of mathematics anxiety that students usually experience. The Mathematics Test Anxiety subscale assesses student reactions to evaluative situations in mathematics. The Mathematics Course Anxiety subscale is designed to measure student reactions to being in a mathematics class. The Numerical Task Anxiety subscale measures anxiety due to basic math activities such as multiplication and division. Psychometric properties of the RMARS were investigated in a few studies. Initial construct validity of the instrument was obtained from a sample of 517 undergraduate students (Alexander & Martray, 1989).

A principal component factor analysis with squared multiple correlations as initial communality estimates and with a Varimax rotation of the 69-item-version MARS revealed three factors, Mathematics Test Anxiety, Mathematics Course Anxiety, and Numerical Test Anxiety, which accounted for 31% of the variance in the RMARS scores. In a more recent study, Bowd and Brady (2002) conducted principal components analysis followed by Varimax rotation on the results of 357 senior undergraduates in education and found three factors that accounted for 73 % of the variability in the RMARS scores. The three factors were named Mathematics Test Anxiety (11 items), Mathematics Course Anxiety (8 items), and Numerical Task Anxiety (4 items).

Initial concurrent validity of the instrument was tested by comparing it with the Fennema-Sherman Attitude Scale (1976), and negative relationships were found, which meant that students who had more favorable attitudes toward mathematics experienced less mathematics anxiety (Alexander & Martray, 1989). In addition, Moore, Alexander, Redfield, and Martray (1988) found high to moderate correlations between the RMARS and the MAS (Fennema & Sherman, 1976), the State-Trait Anxiety Inventory (Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983), and the Test Anxiety Inventory (Spielberger, 1980).

Alexander and Martray (1989) also found that the RMARS discriminated between students who took geometry or algebra in high school and students who did not. Students who took an algebra course ($F = 18.07$, $p < .001$) and a geometry course ($F = 25.60$, $p < .001$) in high school experienced significantly less mathematics anxiety compared with students who did not take these courses, as measured with the RMARS. Moore et al. (1988) also revealed that the RMARS scores were significantly correlated with the American College Testing mathematics scores and mathematics course grades. Moderate-to-high-reliability evidence was found for the total and subscales of the RMARS. Initial internal consistency reliability coefficients of the RMARS subscales were .96 for the Mathematics Test Anxiety, .86 for the Numerical Task Anxiety, and .84 for the Math Course Anxiety (Alexander & Martray, 1989).

Because the psychometric properties of the RMARS have not been fully investigated, we set out to investigate the validity and reliability of the scale. Validity was investigated in terms of its construct and concurrent validity.

Individual RMARS items and three subscales were tested through a confirmatory factor analysis by means of structural equation modeling techniques. When the confirmatory factor analysis did not confirm the underlying factor structure of the RMARS, an exploratory factor analysis was used to discover which measured variables formed a common factor or factors. In addition, students 'perceived general and current mathematics anxiety levels were used to investigate the concurrent validity of the RMARS. Perceived general mathematics anxiety levels were assessed on a scale of 0 to 100, where the higher ratings indicated the higher levels of mathematics anxiety that students usually experience.

Similarly, perceived current mathematics anxiety levels were assessed on a scale of 0 to 100, where the higher ratings indicated the higher levels of mathematics anxiety that students were experiencing at the moment of administration. For the purpose of reliability, the consistency of the instrument's items was studied with internal consistency and split-half reliability coefficients.

From the analysis and discussion of literature that explain the phenomenon, we justify the theoretic cause model that follows from the subsequent construct.

3. Methods

This study is non-experimental since the independent variables are not manipulated and hence, the effects (dependent variables) will not be conditioned towards a determined result. It is transversal-cut considering that the recollection of data by the application of the instrument and its analysis and interpretation were made at a single time. The study is explanatory because it seeks to know the level of anxiety towards Mathematics in students from the Economic-Administrative area as from the model posed by Richardson and Suinn (1972), which has three factors: anxiety towards the evaluation of Mathematics, anxiety towards the course of Mathematics and numerical anxiety.

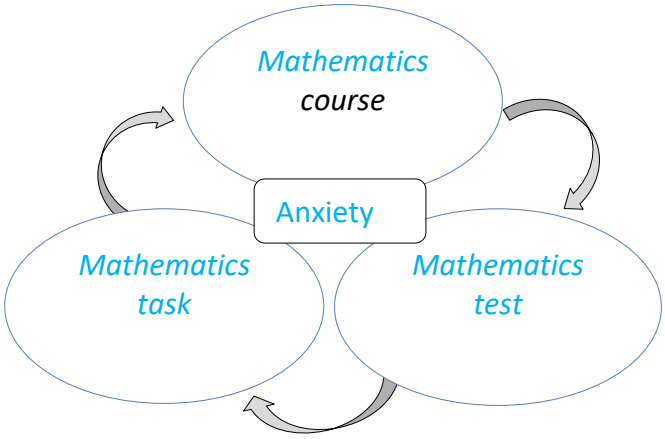

Fig. 1. Theoretical model of anxiety (Richardson and Suinn (1972) and modified by Alexander and Martray (1989).

3.1. Test

The used instrument was the Revised Mathematics Anxiety Rating Scale (RMARS) developed in the seminal work of Richardson and Suinn (1972) and later modified to 25 items by Alexander and Martray (1989). The scale consists of 3 factors: Math evaluation anxiety (15), numerical anxiety (5) and anxiety towards the course of Mathematics (5). The scale used is Likert-type, N=Nothing (1); L=Little (2); AGA= A Good Amount (3); VM= Very Much (4); TM=Too Much (5). Also, table 1 shows the integration of items by dimension.

Table 1. Factors in the RMARS scale of anxiety towards Mathematics.

Indicators	Definition	Codes/items
1-15	Anxiety towards mathematical tests	MATHTEST01 to 15
16-20	Numerical anxiety	MATHTASK16 to 20
21-25	Anxiety towards mathematical course	MATHCOURSE21 to 25

Source: taken from Alexander and Martray (1989), reduced version of the Richardson and Ruin scale (1972).

3.2. Participants

The population of this study is the students who are in a career of the Economic-Administrative area of the Institute that participates in this study, the requirement is that they are active in their institute at the time of applying the survey..

3.3. Sample size

It is a non-probabilistic sample since it was decided to carry out a census, meaning a non-probabilistic by convenience because the choosing of the sample do not depend on probability but on the causes related with the research characteristics, such as the criteria for the survey application, which is that they are registered and present at the time of the test application. With the former, key information can be obtained about the study subjects to later capture and analyse the data with the SPSS software v.16 (*Statistical Package for Social Science*).

3.4. Statistical procedure

For the evaluation and interpretation of data phase, we follow the procedure that has been carried out in some studies, García-Santillán, Venegas-Martínez, Escalera-Chávez and Córdova-Rangel, (2013); García-Santillán, Escalera-Chávez, Córdova-Rangel and López-Morales (2014); García-Santillán, Escalera-Chávez, Moreno-García and Santana-Villegas (2015), García-Santillán (2017) who used the exploratory factorial analysis with main components extraction.

Under the theoretical criteria that stablishes that the hypothesis are invariant: Null hypothesis: Ho = 0 showing that there is no correlation and Hi ≠ 0 that indicates that there is a correlation. Also the decision criterion for the rejection of Ho in all the cases is: Reject Ho if chi-square χ^2 calculated > chi-square χ^2 tables.

As a first step, the instrument is validated by Cronbach alpha and later, the pertinence of using factorial analysis for which the chi-square χ^2 test was applied, the Barttlet test of Sphericity with KMO (Kaiser-Meyer-Olkin), the determinant value to identify the correlations and the measures of sample adequacy by variable (MSA) with significance α =0.01; factorial charges of 0.70 and % of the explained variance.

4. Results

First, the internal consistency of the used instrument by Alexader and Martray (1989) was evaluated. For that, the reliability and internal consistency test Cronbach alpha (α) was used. This coefficient represents the square of the correlation coefficient that measures the consistency of the items through the average of all the correlations among all the items. The closer it is to 1, the better the reliability. The values (α) from 0.80 are considered very acceptable (Hair, Anderson, Tatham and Black, 1999).

To begin, Table 3 shows the Cronbach alpha values for the total of items of the scale "Revised Mathematics Anxiety Rating Scale", as well as grouped for the three dimensions of anxiety: towards the tasks, towards the exams and towards the course.

Table 2. Reliability test

Concept	Cases	%	α
Valid cases	100	100.0	0.911 with 28 factors (25 items of the scale and the career profile, year and gender)
Excluded (a)	0	0.0	
Total	100	100.0	

a. Removal based on all the variables of the procedure.
Source: own

The results show a Cronbach alpha α of 0.911 for all the items, which is considered acceptable based on the theoretical criteria stated by Hair *et al*, (1999) and so it can be said that the scale reunites characteristics of internal consistency and reliability for the instrument validity.

4.1. Bartlett´s test of Sphericity

To determine if the factorial technique is suitable to explain the data, we obtained the values of Bartlett test of with Sphericity Kaiser (KMO) and the adjustment index X^2 *with df* and the value

of α =0.01, as well as the measure of sample adequacy (MSA) and the determinant value to identify if there is correlation among the variables of the study. In this manner, table 3 shows the values of chi-square $X^2$with 276 *df* (1404.084), the KMO value is 0.857 and sig. < 0.00

Table 3. Bartlett test of Sphericity with Kaiser (KMO)

Measure of sample adequacy Kaiser-Meyer-Olkin.		0.857
Bartlett sphericity test	Approximate chi- square	1404.084
	df	276
	p.	0.000

Source: own

The values shown on table 3 support the use of the factorial analysis technique, also, according to the acceptance and rejection criteria of the hypothesis, we can reject the null hypothesis which states that the variables are not correlated, on the contrary, there is evidence that they do present correlation, hence Ho is rejected. Therefore, Table 4 (see in annex) show the correlation matrix with acceptable values (>0.5) between the dimensions implied in the calculus, as well as the MSA values which tend to 1.

For the specific case of the measure of sample adequacy by variable (MSA), on table 5 (see in annex) we can see the obtained values by the variables of the study, which present values that range from 0.759 (lower value of X_{16}) to 0.926 (higher value of X_{13}).

4.2. Components, communalities, eigenvalue and total variance matrix

Now that the use of the factorial technique has been justified, the evaluation of the factorial loadings of the grouped items is presented for the rotation and extraction of rotated components, under the criteria of eigenvalue > than 1, hence table 6 shows the obtained components, variance proportion, eigenvalue and total variance explained.

Table 6. Factors, communalities and variance

Variables	1	2	3	4	5	Communalities
X_4	.837					.727
X_3	.699					.651
X_2	.691					.599
X_1	.608					.602
X_{14}	.556					.730
X_{19}		.885				.867
X_{18}		.877				.859
X_{20}		.846				.816
X_{17}		.568				.524
X_8			.812			.815
X_9			.806			.683
X_{15}			.639			.616
X_{21}				.771		.726
X_{11}				.712		.680
X_5				.631		.661
X_{16}					.677	.661
X_{10}					.537	.540
X_{24}					.515	.662
Eigenvalue	9.450	2.354	1.444	1.389	1.112	
% Variance	39.377	9.808	6.015	5.788	4.634	
% Total Variance			65.62%			

Source: own

As we can see on Table 6 with the component extraction of the rotated components that are grouped by components, according to the criteria of the Eigenvalue higher than 1, five components were able to obtained, which are integrated as follows: the variables that compose component 1 are all related to the exams (39.37 % of its variance), the component 2 is integrated by the variables linked to the mathematical problems to solve (9.08 of its variance), component 3 incorporates the variables linked to the thought of temporality previous to exam (6.015 of the variance), component 4 integrates variables associated to mathematical textbooks (5.7 % of its variance) and finally, component 5 (1.1 % of its variance), which integrates variables related to the fact of listening about mathematics. All of the former explains 65.62 % of the total variance of the studied phenomenon.

5. Conclusion and Discussion

With the evidence attained by the analysis of main components, we were able to know that the RMARS scale of Richardson and Suinn (1972) do not present a tridimensional model, on the contrary, it presented pentadimensional behavior when applied in college students of the economic-administration area of the Veracruz Institute of Technology. Therefore, the resulting model of the five extracted components (called factors) and which explain the phenomenon of anxiety in college students, as shown on Figure 2.

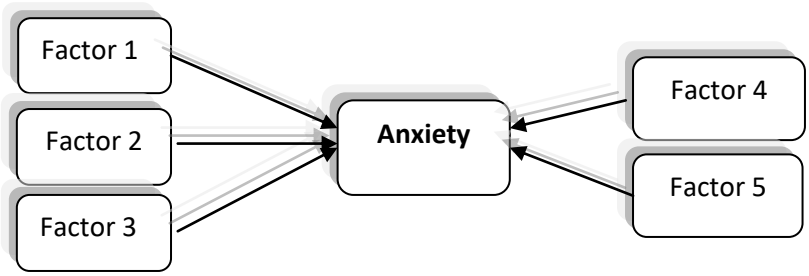

Fig. 2 Pentadimentional Model of anxiety

Where:

Component 1 “Anxiety during exams”, Component 2 “Anxiety toward numerical cases” Component 3 “Anxiety for the exams”, Component 4 “Anxiety toward math textbook”, Component 5 “Anxiety toward alternative activities on math”

Also, it can be proved that some variables from the 25 items scale that was modified by Alexander and Martray (1989) did not present loading in some of the components, this items are: 6, 7, 12, 13, 22, 23 and 25 (see table 7).

Table 7. Items excluded

Item 6. Being given homework assignments of many difficult problems that are due the next class meeting
Item 7. Thinking about an upcoming math test 1 week before
Item 12. Receiving your final math grade in the mail
Item 13. Opening a math or stat book and seeing a page full of problems
Item 22. Watching a teacher work on an algebraic equation on the blackboard
Item 23. Signing up for a math course
Item 25. Walking into a math course

Source: take it of Alexander y Martray (1989)

As part of the important findings obtained, we could know that students are caused a great anxiety (39.27 %) by all that is related to exams, generally speaking, even quick tests. This fact constitutes a previous antecedent from which students can be oriented with didactic strategies that

allow them to acquire skills needed to reduce anxiety and in a very specific way, when they present any mathematics exam.

It is clear that if strategies are carried out inside the teaching-learning process in this discipline, the performance of the student would be stimulated and it would certainly reduce the level of anxiety towards the solving of problems in daily life where mathematic aspects are involved or also, when students hear topics related to mathematics, the anxiety towards this subject would be reduced. But which would be the practical implications? To this effect it is convenient to discuss each of the attained components described in table 8.

Regarding Component 1 called "anxiety during exams", students show the highest level of anxiety when facing an evaluation of their knowledge, meaning, when an exam is applied. This anxiety presents from the time students start preparing for the test, whether to enter a college or in the midterms or final exams, even the quick tests applied automatically at the end of each subject.

For Component 2, called "anxiety towards numeric problems" students present a level of anxiety when facing a series of mathematical problems they must solve, whether they are multiplications or divisions. The fact of solving mathematical operations constitutes a trigger of anxiety in students.

In the case of component 3 called "anxiety towards exams", unlike component 1 where students present anxiety when in the process of an exam application, in component 3 the students generate anxiety by the simple fact of thinking that an exam will come shortly, meaning that he/she has not yet prepared nor he/she is solving exercises to practice, it is just the fact of thinking previously in the time when an exam will be applied, whether this is a day or an hour before.

For component 4 called "anxiety towards mathematics books" students generate anxiety when they must buy a mathematics book or when they asked for a book to a classmate, it is also the fact of collecting a mathematics book for reading or to make some difficult task that causes anxiety.

Finally, a fifth component called "anxiety towards complementing activities about mathematics" is when students are caused anxiety by alternatively or at least outside the classroom they are related to subjects about mathematics, for instance when they read a receipt after a purchase or when they realize they have to take a number of mathematic classes since it is a requirement of the career they are studying or when hearing another student explain some mathematical formulas.

Table 8. Components extracted

Component 1 "Anxiety during exams"	Component 2 "Anxiety toward numerical cases"	Component 3 "Anxiety for the exams"	Component 4 "Anxiety toward math textbook"	Component 5 "Anxiety toward alternative activities on math"
Item 4.- Taking an exam (final) in a math course (.837)	***Item 19.-*** Being given a set of multiplication problems to solve (.885)	***Item 8.-*** Thinking about an upcoming math test 1 day before (.812)	***Item 21.-*** Buying a math textbook (.771)	***Item 16.-*** Reading a cash register receipt after your purchase (.677)
Item 3.- Taking an exam (quiz) in a math course (.699)	***Item 18.-*** Being given a set of subtraction problems to solve (.877)	***Item 9.-*** Thinking about an upcoming math test 1 hour before (.806)	***Item 11.-*** Picking up math textbook to begin a difficult reading assignment (.712)	***Item 10.-*** Realizing you have to take a certain number of math classes to fulfill requirements in your major (.537)
Item 2.- Taking the mathematics section of college entrance exam (.691)	***X20.-*** Being given a set of division problems to solve (.846) ***X17.-*** Being given a set of	***Item 15.-*** Being give a "pop" quiz in a math class (.639)	***Item 5.-*** Picking up math textbook to begin working on a homework assignment (.631)	***Item 24.-*** Listening to another student explain a math formula (.515)

Item 1.- Studying for a math test (.608)	numerical problems involving addition to solve
Item 14.- Getting ready to study for a math test (.556)	on paper (.568)

Source: own

By means of final reflection we can say that regarding anxiety, like a feeling innate of human beings towards certain circumstances, causes an apparent obstacle in the student´s performance, meaning that being present can hinder the development of skills, in this case mathematical skills. In fact, this subject has been approached in several studies in Latin contexts, specifically in the Mexican context and in the southeast region of the country (García-Santillán et al., 2014, 2015).

The findings shown by the study could be the starting point to propose new didactic strategies that incorporate activities that help the development of numerical skills in the student and that encourage a significant learning more than learning by memory. This knowledge should be taken to the practical field where learning of the solving of daily life problems is contextualized in the own environment of the students. By developing skills to solve numerical problems, the student´s self-esteem would be increased, which would probably help to reduce the level of anxiety towards mathematic, which has been by decades one of the subjects avoided by students in their academic training.

It is clear that as didactic strategies are incorporated to the educational systems in Mexico, the aspects that cause anxiety towards mathematics can be reduced. To this effect it is important to consider that anxiety towards mathematics affects student´s groups and the educational institutions in their performance scores which are evaluated by other organizations.

Recommendation and futures works

The conclusion of this research coincides with the result provided by the Organization for Economic Co-operation and Development (OECD) from the PISA test 2015, where yet again the results do not favor the Mexican educational system. The Secretary of Public Education stated that although there has been a slight improvement in Mathematics, the desired results have not yet been achieved. Even the gap between the students of high and low socio-economic level has been reduced, which is evidence of equity in the Mexican education system (OECD, 2016).

It is clear that the educational reform proposed in the term of President Peña Nieto has not achieved the expected results, which shows stagnation in the Mexican education system, with serious problems regarding the student´s performance, according to Gabriela Ramos, cabinet director of the OECD. It is clear that this is not what Mexico wants, since the middle school student, whose mean age is among 15 years old, enters high school, which precedes college education. At this age, they are close to entering adulthood, when they start to take decisions related to money for instance. Therefore, the low performance in math and specifically financial mathematics can be an obstacle in their daily life.

Finally, the importance of continuing this line of research comes from the position of Mexico, which is number 59 of 71 evaluated countries. The score attained was: 416 points in Sciences, 423 in Reading and 408 in Mathematics, all of which are below the average of 500 points for the three subjects. Because of the former, further exploration is suggested in order to identify the factors that influence anxiety, attitude and behavior toward Mathematics, so that proposals of didactic strategies can be presented in order to redesign the contents of the study plans.

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Annexes

Table 4. Correlations matrix

	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10	X11	X12	X13	X14	X15	X16	X17	X18	X19	X20	X21	X22	X23	X24
X1	**1.00**	0.51	0.43	0.47	0.34	0.40	0.41	0.49	0.28	0.41	0.21	0.30	0.42	0.58	0.44	0.24	0.25	0.28	0.29	0.32	0.12	0.28	0.42	0.38
X2		**1.00**	0.53	0.49	0.34	0.41	0.39	0.36	0.28	0.39	0.31	0.35	0.40	0.47	0.35	0.13	0.36	0.24	0.41	0.36	0.10	0.32	0.41	0.42
X3			**1.00**	0.64	0.32	0.47	0.45	0.32	0.31	0.25	0.42	0.44	0.44	0.48	0.38	0.03	0.40	0.31	0.32	0.27	0.30	0.23	0.32	0.30
X4				**1.00**	0.21	0.44	0.40	0.27	0.19	0.31	0.35	0.37	0.41	0.50	0.25	-0.05	0.28	0.26	0.28	0.20	0.15	0.27	0.38	0.33
X5					**1.00**	0.46	0.52	0.38	0.27	0.31	0.65	0.22	0.36	0.55	0.34	0.44	0.37	0.41	0.43	0.44	0.43	0.36	0.31	0.45
X6						**1.00**	0.53	0.43	0.29	0.44	0.43	0.26	0.45	0.64	0.51	0.21	0.42	0.45	0.35	0.38	0.23	0.46	0.38	0.44
X7							**1.00**	0.61	0.44	0.39	0.44	0.27	0.48	0.60	0.43	0.24	0.40	0.34	0.34	0.39	0.36	0.42	0.40	0.45
X8								**1.00**	0.65	0.43	0.24	0.30	0.38	0.49	0.58	0.20	0.31	0.18	0.22	0.30	0.24	0.33	0.22	0.35
X9									**1.00**	0.28	0.23	0.43	0.31	0.40	0.40	0.16	0.34	0.17	0.21	0.24	0.22	0.20	0.21	0.20
X10										**1.00**	0.37	0.17	0.35	0.40	0.20	0.31	0.36	0.27	0.32	0.31	0.03	0.33	0.37	0.40
X11											**1.00**	0.25	0.42	0.50	0.31	0.28	0.40	0.39	0.43	0.33	0.42	0.33	0.44	0.34
X12												**1.00**	0.54	0.44	0.42	-0.12	0.27	0.12	0.20	0.21	0.33	0.20	0.21	0.10
X13													**1.00**	0.62	0.48	0.16	0.40	0.29	0.36	0.35	0.35	0.39	0.33	0.37
X14														**1.00**	0.54	0.27	0.46	0.40	0.39	0.41	0.35	0.47	0.56	0.59
X15															**1.00**	0.10	0.33	0.21	0.23	0.30	0.44	0.36	0.32	0.22
X16																**1.00**	0.30	0.44	0.38	0.39	0.14	0.44	0.14	0.47
X17																	**1.00**	0.55	0.53	0.50	0.34	0.44	0.35	0.32
X18																		**1.00**	0.86	0.78	0.25	0.43	0.41	0.58
X19																			**1.00**	0.80	0.31	0.39	0.38	0.56
X20																				**1.00**	0.31	0.45	0.44	0.59
X21																					**1.00**	0.35	0.37	0.25
X22																						**1.00**	0.39	0.54
X23																							**1.00**	0.52
X24																								**1.00**

a Determinante = 1.73E-007

Table 5. Anti-image Matrix

		X1	X2	X3	X4	X5	X6	X7	X8	X9	X10	X11	X12	X13	X14	X15	X16	X17	X18	X19	X20	X21	X22	X23	X24
Covariance anti-image	X1	0.4130	-0.0730	-0.0420	-0.0870	-0.0450	0.0500	0.0290	-0.0830	0.0570	-0.0640	0.1040	0.0020	-0.0310	-0.0780	-0.0490	-0.0920	0.0670	-0.0250	0.0070	0.0020	0.0380	0.0360	-0.0860	0.0640
	X2		0.3970	-0.1050	-0.0300	-0.0470	-0.0460	-0.0030	0.0050	0.0060	0.0160	0.0250	-0.0510	0.0040	0.0410	-0.0300	-0.0070	-0.0680	0.1050	-0.0980	-0.0020	0.1370	-0.0300	-0.0870	-0.0600
	X3			0.3980	-0.1540	0.0260	-0.0380	-0.0490	0.0290	-0.0350	0.0340	-0.0650	-0.0500	0.0030	0.0220	-0.0280	0.0160	-0.0560	-0.0320	0.0280	0.0120	-0.0640	0.0770	0.0580	-0.0270
	X4				0.4230	0.0560	-0.0360	-0.0300	-0.0110	0.0400	-0.0070	-0.0500	-0.0360	0.0010	-0.0330	0.0730	0.0890	0.0130	-0.0030	-0.0130	0.0330	0.0160	-0.0560	-0.0080	-0.0160
	X5					0.3560	-0.0480	-0.0580	-0.0270	0.0350	0.0320	-0.1790	-0.0290	0.0630	-0.0530	0.0360	-0.0830	0.0070	0.0040	0.0050	-0.0410	-0.0920	0.0470	0.0800	-0.0140
	X6						0.3700	-0.0290	0.0110	-0.0040	-0.1160	0.0000	0.0640	-0.0140	-0.0770	-0.1050	0.0670	0.0170	-0.0790	0.0590	0.0060	0.0280	-0.0680	0.0500	0.0110
	X7							0.4120	-0.1150	-0.0220	-0.0050	-0.0020	0.0630	-0.0640	-0.0340	0.0460	0.0120	0.0050	-0.0070	0.0140	-0.0180	-0.0460	-0.0280	-0.0300	0.0110
	X8								0.2920	-0.1880	-0.0930	0.0220	0.0440	0.0100	0.0160	-0.1240	0.0490	0.0000	0.0090	0.0090	-0.0160	-0.0050	-0.0190	0.0820	-0.0530
	X9									0.4530	0.0320	-0.0090	-0.1520	0.0490	-0.0270	0.0260	-0.0870	-0.0560	0.0140	-0.0190	0.0100	0.0300	0.0500	-0.0560	0.0310
	X10										0.5170	-0.0830	-0.0480	-0.0320	0.0490	0.0760	-0.0870	-0.0910	0.0580	-0.0430	0.0010	0.1130	0.0130	-0.0930	-0.0350
	X11											0.3760	0.0240	-0.0590	-0.0150	-0.0130	-0.0340	0.0120	0.0030	-0.0370	0.0500	-0.0220	-0.0050	-0.1060	0.0570
	X12												0.4530	-0.1460	-0.0630	-0.0320	0.1220	0.0380	-0.0180	0.0190	-0.0370	-0.0810	-0.0510	0.0570	0.0580
	X13													0.4440	-0.0700	-0.0420	-0.0210	-0.0280	0.0260	-0.0250	-0.0090	-0.0220	-0.0160	0.0550	-0.0200
	X14														0.2440	-0.0440	-0.0070	-0.0640	0.0180	-0.0040	0.0270	0.0430	0.0150	-0.0740	-0.0990
	X15															0.3970	-0.0020	0.0120	0.0080	0.0010	-0.0280	-0.1100	-0.0370	-0.0260	0.0770
	X16																0.4610	-0.0190	-0.0500	0.0280	0.0020	-0.0090	-0.1400	0.1080	-0.0770
	X17																	0.4820	-0.0610	0.0050	-0.0230	-0.0690	-0.0850	0.0070	0.1140
	X18																		0.1420	-0.0990	-0.0370	0.0550	-0.0030	-0.0470	-0.0300
	X19																			0.1490	-0.0670	-0.0590	0.0180	0.0580	-0.0040
	X20																				0.2670	0.0140	-0.0190	-0.0540	-0.0440
	X21																					0.4800	-0.0650	-0.1300	-0.0290
	X22																						0.4960	-0.0230	-0.0800
	X23																							0.4090	-0.0660
	X24																								0.3200
Correlation	X1	**.859(a)**	-0.1800	-0.1040	-0.2080	-0.1170	0.1290	0.0710	-0.2390	0.1330	-0.1380	0.2640	0.0050	-0.0740	-0.2470	-0.1210	-0.2110	0.1490	-0.1010	0.0300	0.0070	0.0860	0.0790	-0.2080	0.1760
	X2		**.815(a)**	-0.2630	-0.0730	-0.1250	-0.1200	-0.0080	0.0160	0.0150	0.0350	0.0640	-0.1210	0.0100	0.1310	-0.0760	-0.0170	-0.1550	0.4430	-0.4010	-0.0050	0.3150	-0.0670	-0.2150	-0.1680
	X3			**.882(a)**	-0.3770	0.0690	-0.0980	-0.1210	0.0850	-0.0830	0.0760	-0.1690	-0.1180	0.0080	0.0720	-0.0710	0.0360	-0.1280	-0.1340	0.1140	0.0380	-0.1460	0.1720	0.1430	-0.0760
	X4				**.884(a)**	0.1440	-0.0910	-0.0720	-0.0320	0.0910	-0.0150	-0.1260	-0.0810	0.0020	-0.1020	0.1790	0.2010	0.0290	-0.0130	-0.0540	0.0990	0.0360	-0.1220	-0.0200	-0.0430
	X5					**.861(a)**	-0.1330	-0.1510	-0.0840	0.0870	0.0750	-0.4910	-0.0710	0.1580	-0.1810	0.0950	-0.2050	0.0180	0.0180	0.0200	-0.1340	-0.2230	0.1110	0.2090	-0.0420
	X6						**.879(a)**	-0.0740	0.0330	-0.0090	-0.2640	-0.0010	0.1560	-0.0340	-0.2560	-0.2730	0.1630	0.0390	-0.3470	0.2500	0.0180	0.0670	-0.1590	0.1280	0.0320
	X7							**.942(a)**	-0.3300	-0.0510	-0.0110	-0.0040	0.1450	-0.1500	-0.1070	0.1140	0.0270	0.0120	-0.0290	0.0570	-0.0550	-0.1020	-0.0630	-0.0730	0.0310
	X8								**.811(a)**	-0.5180	-0.2390	0.0670	0.1210	0.0290	0.0590	-0.3650	0.1350	0.0010	0.0450	0.0420	-0.0560	-0.0140	-0.0510	0.2370	-0.1720
	X9									**.803(a)**	0.0670	-0.0220	-0.3340	0.1100	-0.0820	0.0610	-0.1900	-0.1190	0.0540	-0.0750	0.0280	0.0640	0.1050	-0.1290	0.0820
	X10										**.838(a)**	-0.1890	-0.0980	-0.0660	0.1380	0.1680	-0.1780	-0.1810	0.2140	-0.1560	0.0040	0.2270	0.0260	-0.2020	-0.0870
	X11											**.852(a)**	0.0590	-0.1440	-0.0490	-0.0340	-0.0820	0.0280	0.0140	-0.1570	0.1570	-0.0520	-0.0120	-0.2700	0.1630
	X12												**.796(a)**	-0.3260	-0.1890	-0.0760	0.2670	0.0810	-0.0690	0.0740	-0.1050	-0.1730	-0.1080	0.1320	0.1530
	X13													**.926(a)**	-0.2120	-0.1010	-0.0460	-0.0610	0.1020	-0.0970	-0.0250	-0.0470	-0.0340	0.1280	-0.0540
	X14														**.904(a)**	-0.1400	-0.0200	-0.1860	0.0990	-0.0220	0.1080	0.1260	0.0420	-0.2330	-0.3540
	X15															**.868(a)**	-0.0040	0.0280	0.0340	0.0050	-0.0850	-0.2510	-0.0830	-0.0660	0.2160
	X16																**.759(a)**	-0.0400	-0.1950	0.1080	0.0070	-0.0180	-0.2920	0.2490	-0.2000
	X17																	**.906(a)**	-0.2340	0.0180	-0.0640	-0.1430	-0.1730	0.0160	0.2910
	X18																		**.779(a)**	-0.6830	-0.1890	0.2120	-0.0100	-0.1950	-0.1420
	X19																			**.802(a)**	-0.3370	-0.2210	0.0680	0.2340	-0.0180
	X20																				**.932(a)**	0.0400	-0.0530	-0.1640	-0.1490
	X21																					**.777(a)**	-0.1340	-0.2940	-0.0750
	X22																						**.911(a)**	-0.0510	-0.2000
	X23																							**.807(a)**	-0.1830
	X24																								**.873(a)**

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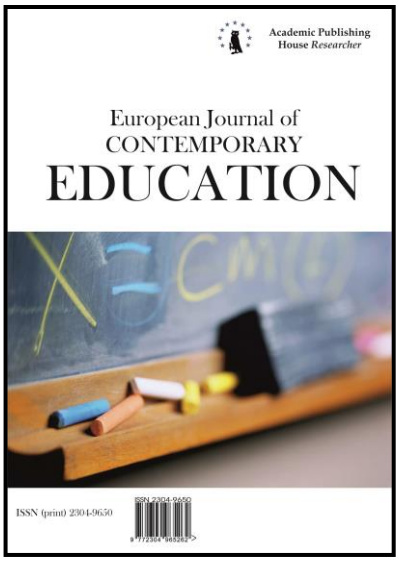

Testing Methodology in the Student Learning Process

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Abstract

The subject of the research is to build methodologies to evaluate the student knowledge by testing. The author points to the importance of feedback about the mastering level in the learning process. Testing is considered as a tool. The object of the study is to create the test system models for defence practice problems. Special attention is paid to the reliability of simulated tests, and to their differentiating ability to assess knowledge. The author pays significant attention to the learning aspect of tests, that assumes the student's choice of the method to solve proposed test tasks. Various methods are suggested, including a model of fuzzy estimation of knowledge based on testing results, which allows to evaluate not only the result obtained, but also the solution method.

Open and multiple choice problems, offered to students and evaluated by the binary system, are chosen as a methodology for creating tests. An algorithm to test the hypothesis of normal distribution using the Shapiro-Wilk criterion is proposed. The scoring scales and the creating tests methodology are also described.

There are the following conclusions. The first, the possibility of using tests to evaluate students' understanding of the acquired material. The second, the possibility of including testing in the educational process. The technology for estimating knowledge using a fuzzy model is proposed, which is in good agreement with the methodology of training itself. The main result is the developed technology of testing with automatic option development and result processing. The proposed testing algorithm can be included in the general methodology of studying the discipline.

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1. Introduction

The learning process is a complex system. A key factor of the consistency of its functioning is the possibility of obtaining and deciphering the feedback needed for all participants in the educational process. The teacher, receiving the necessary information about the level of student achievements, can adjust the educational process for its optimization. The trainee also gets the opportunity to get self-control and self-diagnosis of his training.

Today, there are many ways to set up such feedback, including in the form of various tests, that, when performing a full set of measures, can be served as a relatively objective tool of pedagogical diagnostics to organize an effective feedback system (Baayen, 2008; Bartram, 1995; Kenneth, 2012; Reeve, 2003; Fisher, 2014).

Pedagogical testing serves not only the purposes of monitoring. As V. Avanesov notes (Avanesov, 1989) one of the functions of pedagogical testing is the teaching function, which most clearly manifests itself in programmed learning. The purpose of this study was to develop a testing technology and include it in the learning process.

2. Preparation and testing

MGSU Department of Applied Mathematics has been testing students in mathematics for several years. The positive experience of using the developed method described in (Safina et al., 2015; Osipov et al., 2016) made it possible to extend this method to Computer Science. From the entire course of this discipline, a semester about the study of the basics of programming in the MATLAB environment, and the introduction into numerical methods using knowledge of linear algebra, was selected. Therefore, this semester can be considered as the application of mathematical models in Computer Science, and this module can be considered as interdisciplinary.

This course of Computer Science consists of a set of lectures and 7 lab tasks. Student should take a differentiated test to pass this course. Topics are studied:

1. The solution of the system of linear algebraic equations (SLAE) by the Gauss method;
2. The solution of SLAE by iterative methods, such as the simple iteration method and the Seidel method;
3. calculation of the inverse matrix by the Gauss method;
4. Calculation of eigenvalues and eigenvectors of the matrix using the power method;
5. Numerical integration by methods of rectangles, trapezoids and Simpson;
6. Solution of the nonlinear equation by half-division method and the Newton method;
7. The least square method for constructing an optimal line.

The implementation of each lab test consists of three stages:

1. perform a manual calculation to study the functioning of the mathematical model and obtain a test result;
2. implement the computer program, in this case in the MATLAB environment, and compare the results with the manual calculation;
3. defence the lab test.

The last stage of lab test defence is applied as a test. This semester ends with a differentiated test that evaluates the student knowledge using four-point grade system.

Therefore, the task that was posed to the author is whether it is possible to develop a testing system that could be used to grade students by the results of the test.

Testing was conducted among the first and second year students of the Moscow State University of Civil Engineering in the discipline of Computer Science.

3. Test material preparation

All technology of tests modeling should be defined based on the requirements. In this case, as such a goal, the problem was formulated to assess student's understanding of mathematical models and numerical methods of the class of required problems. To achieve this goal, the following technologies were used to develop the tests, which help to streamline and efficiently organize the

test based on the theory of develop tests by V.S. Avanesov (Avanesov, 2015; Maiorov, 2001). Here are briefly the main statements that have been used.

4. Rules of the tasks preparation

1. Each test topic was assigned to 4 test tasks. The formulation of all tasks was written in a unified logical form of the statement in the form of an affirmative sentence and in a laconic form, excluding the wrong interpretation.

2. Each group of questions contained two questions (theoretical and computational) of multiple choice type, when the student chooses the correct or several correct answers from the proposed options, and two open type calculation tasks, where the student had to solve the problem and write down the result.

3. Using the multiple choice and open form of the task allows to build tasks with increasing complexity and, thus, to increase tasks learning ability.

As an example, below are four test tasks on the topic of iterative methods for solving SLAE.

1. Chose systems with diagonal predominance

- $\begin{cases} 3x-2y+z=1 \\ 3x-11y+7z=2 \\ x+2y-3z=3 \end{cases}$
- $\begin{cases} 2x_1+3x_2-x_3=9 \\ x_1-2x_2+x_3=3 \\ x_1+2x_3=2 \end{cases}$
- $\begin{cases} 2x_1+10x_2-3x_3=38 \\ -3x_1-12x_2+13x_3=-82 \\ x_1+3x_2-5x_3=27 \end{cases}$
- $\begin{cases} 4x_1+x_2-3x_3=-12 \\ -x_1-12x_2+11x_3=-28 \\ x_1+3x_2-5x_3=51 \end{cases}$

2. Solve the system of equations $\begin{cases} 5x_1+2x_2-x_3=-1 \\ 3x_1+10x_2+x_3=9 \\ x_1+x_2-5x_3=-2 \end{cases}$ by the simple iteration method.

Complete 1 step. Set $x_1^0=0,\ x_2^0=0,\ x_3^0=0$ as an initial approximation. Write x_2^1 as a result.

3. Let there be given a system of linear equations $\begin{cases} x_1+5x_2=1 \\ 2x_1+2x_2=3 \end{cases}$. It must be written in the following form for the convergence of the simple iteration method

- $\begin{cases} x_2=(1-x_1)/5 \\ x_1=(3-2x_2)/2 \end{cases}$
- $\begin{cases} x_1=1-5x_2 \\ x_2=(3-2x_1)/2 \end{cases}$
- $\begin{cases} x_1=2x_1+5x_2-1 \\ x_2=2x_1+3x_2-3 \end{cases}$
- $\begin{cases} x_2=x_1+6x_2-1 \\ x_1=3x_1+2x_2-3 \end{cases}$

4. Using the simple iteration method (3 iterations), determine the 1st column of the inverse matrix to the matrix A: $A=\begin{bmatrix} 6 & -15 \\ 15 & 8 \end{bmatrix}$

The last task allows you to check the understanding of not only the iterative process, but also the understanding of the method of calculating the inverse matrix. Thus, it allows the student to perform the analysis and synthesis actions to obtain the solution of the problem, which corresponds to the upper levels of the Bloom taxonomy (Kim, 2007).

4. The application of the principle of facetedness allowed to compile 30 similar tasks for each of the 28 types of tasks. The test variants were randomly generated using the original technique described in (Safina et al., 2015; Osipov et al., 2016). "The author's program in the form of a macro in Visual Basic generates 30 parallel individual test cases, distributing tasks between subjects in a random way, which ensures the uniqueness of the set of assignments for each student in all study groups"

5. The test is given to students in paper form. The method of solving and the result of the performance of students is recorded in written form.

The main advantage of this method, according to the authors, is the methodological organization of the learning process itself. Testing is part of this process. The defence of lab test should show an understanding of the methods of solving a certain class of problems. All computational tasks were formulated in such a way that they can be solved both manually (Gorbunova et al., 2015), and on a computer in the MATLAB system or with the help of other software tools, for example, Excel. Therefore, it was the paper version of the test that enabled the student to make a choice in favor of one or another method of solution, by writing the solution.

Of course, the shortcomings of this form of test are also obvious. The check is performed manually by the teacher using a file with answers that is generated by the program at the same time as individual task variants. Thus, the verification is fast enough.

And one more undoubted advantage of this form is the possibility of individual analysis of the test in the presence of the student "in the hot pursuit", as well as generalized analysis for the whole group.

6. Testing was limited by 60 minutes.

Task # 1. Evaluation of test quality

The results of the testing were statistically processed using a table processor Microsoft Excel (Shtainer, 2000; Gorbunova, Zhuravleva, 2014). Each task was evaluated on a two-point scale: 0 – the problem was solved incorrectly, 1 – the problem was solved correctly. According to the classical theory of tests, the test result of the test subject is determined by a test score - the sum of the points of each solved test.

5. Evaluation the hypothesis of the normal distribution of test scores

The testing was conducted for students in three groups of the first year and two groups of the second year, with a total of 98 people. The results of the statistical analysis were as follows.

It is known that for a normative-oriented test designed to rank test subjects per their level of knowledge using standardization methods, the distribution curve of the test scores should be symmetrical and close to the Gaussian curve.

There are many ways to check the correspondence of the distribution of points to normal. The choice was made in favor of the method described in (Popov, 2012; Gorbunova, 2017) for small sample groups. The method consisted of several stages: the build of histograms of the distribution of individual scores for groups of subjects depending on the number of solved problems, the analysis of statistical characteristics such as: median, mode, error of the mean, etc. The final decision was made after the Shapiro-Wilk criterion was fulfilled. This criterion is applied just for a small set <50.

The algorithm for calculating the Shapiro-Wilk criterion is sufficiently technological and can be implemented by Excel, or as an independent application. The method was described in (Zalyazhnykh, 2014).

It was concluded that the distribution of test scores in all groups is normal based on study results.

6. Correlation between tasks

Average correlation between topics in table 1.

Table 1. Average correlation between topics

	topic 1	topic 2	topic 3	topic 4	topic 5	topic 6	topic 7
A1	0,324	0,291	0,292	0,129	0,310	0,215	0,237
B1	0,337	0,238	0,321	0,314	0,161	0,350	0,295
C1	0,286	0,157	0,225	0,351	0,239	0,176	0,244
A2	0,271	0,168	0,241	0,297	0,182	0,161	0,254
B2	0,282	0,198	0,281	0,164	0,173	0,289	0,275

According to the recommendations of VS Avanesov (Avanesov, 2005; Kim, 2007) the correlation between topics should not be too high (≤0.3), otherwise the topics begin to duplicate each other.

The average correlation of the results by assignment and individual scores are shown in table 2.

Table 2. The average correlation of the results by assignment and individual scores

	topic 1	topic 2	topic 3	topic 4	topic 5	topic 6	topic 7
A1	0,688	0,660	0,545	0,448	0,572	0,491	0,504
B1	0,567	0,467	0,771	0,730	0,492	0,631	0,523
C1	0,539	0,487	0,514	0,705	0,463	0,278	0,517
A2	0,673	0,710	0,651	0,725	0,561	0,492	0,671
B2	0,597	0,680	0,678	0,692	0,547	0,548	0,586

This result is also correlated with Avanesov's recommendations. The conclusion made that text assignments for different learning groups are consistent with the classical theory of test development and can be used in the learning process.

Task # 2. Evaluate the degree of mastering the material using the test.

The ratio of expectation value to standard deviation is used to estimate of differentiating ability of the test namely the ability to divide students by various levels based on the test score. The differentiating ability of the test is considered satisfactory if the ratio is about 3 or more (Avanesov, 1989).

Table 3. The sufficiently high differentiating ability of the test

	$\overline{X} / s_x$
Group A1	2,97
Group B1	3,12
Group C1	3,71
Group A2	4,89
Group B2	5,58

The data in the table 3 indicates a sufficiently high differentiating ability of the test. Several methods were used to achieve this goal

7. Rating scale application

According to the goal, namely, the lab test defence in the test version, each topic is considered separately in the assessment. The result of each topic is the score of the same four-point scale: "excellent", "good", "satisfactory" and "bad" ("very bad" and "bad" merged into one rating). The topic is considered mastered and appropriately passed if three or more problems are solved. Considering this situation, the result of the test was adjusted, namely the resulting score was calculated considering the submitted topics. The results of this approach were consistent with the normal distribution of 28 points for a four-point scale.

The transfer points from one scale to a five-point scale (1, 2, 3, 4 and 5) was carried out according to the formula

$$O_n = S_5(\frac{p - m_{28}}{S_{28}}) + m_5 \quad (1)$$

,

where O_n – a normalized rating in the final five-point scale; p-points from 0 to 28 the original selection; m_{28} – the mathematical expectation of the studied population; S_{28}- the standard deviation of the study sample; S_5 и m_5 – respectively the standard deviation and the mathematical expectation of the final scale.

Table 4. Assessment scales

Scale of assessment by reference points		Correction of the scale considering the passed topics		The normal distribution scale, O_n	
Initial 'raw' scores	Score by test	Points	Score by test	Points	Grade
1	2	3	4	5	6
0–12	2	0–13	**2**	0–11	**2**
13–17	3	14–18	**3**	12–16	**3**
18–22	4	19–22	**4**	17–22	**4**
23–28	5	23–28	**5**	23–28	**5**

According to the above results, the adjusted range of low scores shifts from the higher score. The range of good grades is also narrowed, which is consistent with the recommendations from the paper (Kim, 2007; Dubas, 1990).

The result of using this technique was the opportunity to obtain an appraisal judgment about the level of students' knowledge, as well as identify topics that are learned and not mastered by students and their subsequent study. At the final exam, students received assignments and questions on topics with the lowest scores.

The described technique allowed to make a conclusion about the understanding of the topic and get an estimate on the four-point scale system. The topics where students got low scores were proposed to pass by the traditional way of oral communication with the teacher, and additional problems were given to students to solve.

As a result, students got the final grade by one or two points higher on average than the test results. Undoubtedly, the additional preparation of students on topics affected here. On average only 5–7 % of students got a final grade on the differential test coinciding with the test.

8. Understanding level estimate for a group.

The next question raised whether it was possible to consider the individual characteristics of the group's training during the assessment of the test, which the teacher considers when working with the group? Groups study by different curricula in different subjects and have some common characteristics.

The criterion of mastering j-th topic q_j is the ratio of the number of students who solved three or more problems from j-th topic, to the total number of students. Accordingly, a criterion of not understanding (level of complexity) of the j-th topic is a number equal to $p_j = 1 - q_j$ which is the ratio of the number of students solved less than three problems from the topic to the total number of students.

These criteria for all 7 topics were determined by the test results separately for each group of students. The average value $\overline{p}$ of the problem simplicity in the group is equal to the ratio of the average number of completed tasks $\overline{X}$ to the test volume $n = 28$; mean complexity $\overline{q} = 1 - \overline{p}$. The results are presented in the table 5.

Table 5. The complexity level criteria of topics for groups $\overline{q}$

group	topic 1	topic 2	topic 3	topic 4	topic 5	topic 6	topic 7
A1	0,364	0,636	0,682	0,955	0,514	0,591	0,545
B1	0,245	0,418	0,455	0,864	0,691	0,418	0,482
C1	0,211	0,500	0,611	0,722	0,722	0,611	0,667
A2	0,193	0,512	0,594	0,681	0,545	0,623	0,692
B2	0,201	0,598	0,498	0,647	0,613	0,681	0,593

As can be seen from the table, topics for diverse groups represent a different level of difficulty.

Therefore, it was suggested to consider the level of complexity for topic understanding. The following scale was introduced.

Table 6. Assessment scale

Difficulty level	Additional points
[0;0,3]	-1
(0,3;0,7]	0
(0,7 ;0,9]	+1
(0,9;1)	+1

Thus, we have received a mechanism for regulating the border whether a topic has been mastered or not for a given group.

The usage of this technique allowed to obtain estimates for the test already at 40 % coinciding with the final grade.

9. Multitasking model of fuzzy estimation of knowledge

Previous technique is an intermediate option between the classical version and innovative approaches. It can be adjusted not only by the rating scale, but the assessment of the task itself cannot be as 'solved/do not solved' method. The other way is incomplete and not very precise methods of solving problems selected by the student. It is also necessary to consider the way of constructing the test itself, using problems of different difficulty levels. And, since students receive test assignments in paper form and write the solution also on paper, it becomes possible in a more complex scale of assessment.

A model of fuzzy estimation of knowledge is offered, that allows to obtain a multivalued quantitative evaluation of the decisions made on their qualitative descriptions. With respect to the task formulation on the learning topics, the tester can determine the degree of truth for each answer by constructing the so-called function of its belonging to the truth estimation scale.

Thus, there is a fundamental opportunity to formulate and present to the examiner the tasks where the task is evaluated corresponding to a multivalued linguistic scale of the following type:

L = ['right', 'incomplete', 'inaccurate', 'undefined', 'wrong']

As the basic technique was taken the method described in the paper (Scherbina, Smyikova, 2011).

The correctness of each variant of the answer is characterized by the membership function specified on the linguistic variable, as the base set of discrete values of the linguistic evaluation scale is used for. The set of answers of each test task is represented by a fuzzy set, where each element is a pair of values ('answer variant' for the multiple-choice test task / 'performance level' for the open, 'membership function'). The degree of "total" correctness of the learner's answers to

all presented test tasks is estimated during testing. This indicator is calculated using the fuzzy algebra apparatus, by constructing the membership function of the set of selected answers applied to the linguistic scale (Uhobotov, 2011).

The procedure for setting the degree of truth to the proposed answers for each test task is determined

$$(V, M_E, L) \to A_j = \{(a_{ij}\ ; \mu_{ij})\}, \quad i = \overline{1, M},\ j = \overline{1, N} \qquad (2)$$

where V is the set of test tasks; M_E — master model of student knowledge; L — linguistic variable that determines the scale of evaluating the correctness of answers;

$A_j = \{(a_{ij}\ ; \mu_{ij})\}, \quad i = \overline{1, M},\ j = \overline{1, N}$ fuzzy set of possible answers (here M is the number of variants of answers to the test task $v_j \in V$ or level of this job, N — number of test tasks (in our case - 28); a_{ij} — i-th the answer to the j-th task, μ_{ij} — the membership function that determines the degree of truth of the answer a_{ij}).

The student selects the solution of multiple choice problem and shows completion and method to solve the open problem for each j-th job. Based on actual responses $\tilde{a}_{ij} \in A_j$ and the corresponding membership function $\tilde{\mu}_{ij}$ the correct population is calculated as a membership function μ_Σ normalized with respect to the number of tasks in the test

$$\mu_\Sigma = \frac{1}{N} \sum_{j=1}^{N} \tilde{\mu}_{ij} \qquad (3)$$

To determine the final score, a comparison is made between the obtained membership function and the reference function.

Table 7. Reference functions of the membership of the final estimates μ_t paper (Scherbina, Smyikova, 2011)

Evaluation O_t	'right'	'incomplete'	'inaccurate'	'undefined'	'wrong'
Unsatisfactory	0	0	0,1	0,3	1
Satisfactory	0,2	0,4	0,9	0,7	0,3
Good	0,7	0,9	0,7	0,3	0,1
Excellent	1	0,3	0,1	0	0

As the final evaluation, the value of O_t is taken, for which the Hamming distance between the corresponding standard membership function μ_T (table 7) and the obtained membership function of the set of selected student responses μ_Σ (3) is minimal

$$\rho(T;\Sigma) = \sum_{t=1}^{T} |\, \mu_T(x_t) - \mu_\Sigma(x_t)\,|$$

$$O = \{O_t, \min \rho(T;\Sigma)\}$$

As an example, we give the following.

Here is the obtained membership function for a student from group A1, who answered 28 questions and did not answer earlier:

$\tilde{\mu}_{ij}$ = [18/ 'correct', 6 / 'incomplete', 2 / 'inaccurate', 1 / 'undefined', 1 / 'incorrect']

Table 8. Final grade/Hamming distance

final grade	Hamming distance
Unsatisfactory	2.12
Satisfactorily	2.4
Good	1.72
Excellent	**0.54**

The minimum distance is 0.54, so the student can get "Excellent" grade. This student could get no more than "Good" grade according to the first technique. The teacher receives a complete picture about the assimilation of the student.

10. Conclusion

The main result of this work is the development of a testing technique to pass Computer Science lab test, which is presented as an algorithm. Its steps include: the task formulation, testing, statistical processing, testing the hypothesis of a normal distribution, obtaining estimates scales, and analysis of topic understanding.

The proposed multitasking model of fuzzy assessment of knowledge allows you to flexibly assess the level of knowledge and understanding of the student. This increases the level of the training function of the test. The model itself allows to use many linguistic variables for different problem sets. For example, for open and multiple choice problems.

All steps are implemented automatically using Excel macros, and MATLAB functions. As a further development, it is intended to fully computerize the entire process without losing its methodological merit to distance learning.

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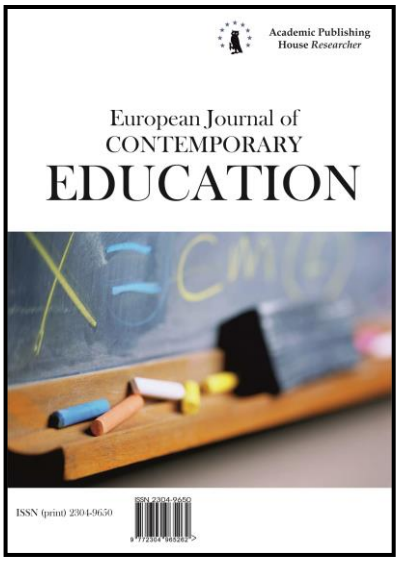

Investigating the Efficiency of Scenario Based Learning and Reflective Learning Approaches in Teacher Education

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Abstract

The main purpose of this research is to investigate the efficiency of scenario based learning and reflective learning approaches in teacher education. The impact of applications of scenario based learning and reflective learning on prospective teachers' academic achievement and views regarding application and professional self-competence perceptions are also searched. This research is both qualitative and quantitative oriented and is conducted with two different groups: one is scenario based learning group and the other one is reflective learning group. Besides, the research is carried out with 62 prospective teachers who take "Teaching Practice" course. The group of reflective learning is composed of 30 prospective teachers whereas the scenario based learning group is composed of 32 prospective teachers. The applications which are lasted 12 weeks are supported with one of the educational social networks called edmodo. The findings of the research revealed that the scenario based learning is more effective than reflective learning in terms of prospective teachers' academic achievement. However, there is no significant difference found in the professional self-competence perceptions of both scenario based learning group and reflective learning group.

Keywords: Academic achievement, edmodo, prospective teachers, self-competence.

1. Introduction

The developments in the field of information and communication technologies have a great impact on social, political, economic, cultural and similar areas and thus the profile of human power that is a crucial requirement for information societies is changing each passing day. Bringing up individuals who search, question, are entrepreneur and information literate and have advanced

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thinking skills is gaining importance day by day in particular in the information age we are in. It is well known that bringing up qualified individuals who could fulfil the requirements of the age is only possible with a good quality education (Schlichter & Danylchenko, 2014; Kossaï & Piget, 2014; Polat & Odabaşı, 2008). However, today innovation is needed in every area of life as it is needed in the field of education and it is not surprising that traditional teaching methods that are mainly based on an objectivist approach are considered unsatisfying (Hançer, 2006; Kılıç, 2004). Within this context, teachers who are one of the most outstanding elements of education should possess skills of being able to implement contemporary approaches that would enable students to carry out active learning. Jakee (2011), claims that active learning is a much more effective process than a process that teacher spoon feeds students. Jakee (2011) continues to claim that it is this process that students gain advanced thinking skills. Furthermore, it is believed that learning outcomes of students are improved with active learning techniques. The studies about learning-teaching that have been carried out in the last 25 years, however, refer to three different approaches which are "teacher centred", "subject centred" and "student centred". These studies also stress that students should be responsible from their own learning processes during teaching process whereas teachers should be guides in this process (Baeten, Struyven & Dochy, 2013; Donche & Van Petefem, 2011; Richardson, 2005). Schelfhout, Dochy, Janssens, Struyven, Gielen and Sierens (2006), nevertheless, emphasised that the most fundamental problem encountered during learning-teaching process is that students memorize the new information and they fail to convey what they have learned into new situations. Schelfhout et al. (2006) expressed that teachers play big roles in solving these problems. Within this context Hammond (2006) by making a point to teachers' professional self-competencies, stressed that for students to have effective learning teachers should present effective teaching (Beausaert, Segers & Wiltink, 2013; Loughran, 2009). Teachers could only present effective teaching when they are fully equipped in their professions. Therefore, it is so apparent why teacher education is very crucial in this sense. Likewise, Özçınar (2015) pointed out that the best way to increase the quality of teacher is to increase the quality of teacher education. In the studies of teacher education carried out in recent years, it has been stated that there are gaps between theory and application. The findings of these studies have also shown that different teaching approaches and events for increasing as well as enhancing prospective teachers' knowledge, skills and attitudes within classroom applications should be given a place (Seidel, Blomberg & Renkl, 2013; Potts & Schlichting, 2011; Ellis et al., 2009; Schelfhout et al., 2006; Hammond, 2006). Dinther, Dochy and Segers (2015) besides making a remarkable point to contemporary teaching approaches and professional self-competence in teacher education, claimed that self-competence has a crucial role in the development of teacher efficiency. Self-competence that is defined as individual competence believes is considered as an important factor in teacher education (Aydemir, Duran, Kapıdere, Kaleci and Aksoy, 2014). Teachers' self-competence perception is directly related with students reaching their desired learning outcomes and how qualified teachers see themselves in the teaching process (Kleinsasser, 2014). Also, it is stated that improving prospective teachers' self-competence perceptions would increase the success of teachers' professional applications and students' learning success in the teacher education (Vieluf, Kunter and Fons J. R. van de Vijver, 2013).

When the literature is reviewed, it is so clearly seen that contemporary teaching approaches like project based learning, problem based learning, inquiry based learning, and scenario based learning and reflective learning in teacher education have attracted considerable attraction recently. It is also discovered that numerous studies have been conducted about the efficiency of teaching approaches and self-competence (Özçınar, 2015; Selmo & Orsenigo, 2014; Skaalvik & Skaalvik, 2010; Schneider & Synteta, 2005). However, it is found that most of these studies were conducted with the aim of comparing the efficiency of contemporary teaching approaches with traditional methods. Therefore, with this study it is aimed to make a comparison of the efficiency of reflective learning which is one of the most popular approaches in teacher education and of scenario based learning approaches and this is how this current study is distinguished from the other studies in the existing literature. Additionally, it is significant to point out that there is not much study in the literature that solely focus on identifying the impact of scenario based learning approaches on prospective teachers' professional self-competencies. Thus, in this study it is also aimed to identify the impact of these approaches on prospective teachers' professional self-competencies. The specific research questions to be pursued in this research are:

1. Is there a significant difference in the academic achievement levels of prospective teachers both scenario based learning group and reflective learning group?
2. Is there a significant difference in the pre-test and post-test score means of professional self-competencies of prospective teachers of both scenario based group and reflective group?
3. What are the views of the prospective teachers regarding the applications of both scenario based learning and reflective learning?

2. Theoretical perspectives

Scenario Based Learning

Within the scope of situated learning theory, the scenario based learning is one of the current approaches that reinforces gaining meaningful learning within the authentic context (Yetik, Akyuz & Keser, 2012). Scenario based learning creates an opportunity for learners for being more active and improving their real life skills during their learning processes (Yarnall, Toyama, Gong, Ayers & Ostrander, 2007; Sorin, 2013). Scenario based learning that is very conducive to learners particularly about being more skilful when they are indecisive about certain details bridges the gap between theory and practice (Errington, 2011; Meldrum, 2011). Sheridan and Kelly (2012) claimed that scenarios should have a connection with the real world so that learners could establish a connection with the applications they would encounter in their future professional lives. Gossman, Stewart, Jaspers and Chapman (2007) like Sheridan and Kelly believe that real life scenarios have a great role for contributing effective learning for the learners. The ones who learn with scenario based learning find themselves into the situation like a player who could solve the problems they encounter easily and this is how they reach the targeted gains (Karaçanta, 2013). Mariappan, Shih and Schrader (2004), on the other hand, stated that scenarios should not only offer the best and the most realistic learning experiences but also they should be amusing and pleasing. However, they also stressed that learners' mistakes should be allowed during learning process. Mariappan et al. (2004) believed that nobody could learn without making mistakes. Sorin (2013) also emphasised the significance of scenario based learning and claimed that with scenarios prospective teachers are given the chance of discovering the situations they could come across in their future classrooms. Besides, teachers could find more than one solution to the teaching dilemmas they encounter everyday with the scenario based learning and could establish a strong link between theory and practice. Within this context, it is thought that scenario based learning approach is considerably important in teacher education.

Reflective Learning

The reflective theory that provides the integration of thinking and action is an approach that is searched deeply by researchers (Colomer, Pallisera, Fullana, Burriel & Fernandez, 2013). It is also described as a process of reaching new values by combining past experiences, actions and theories (Koong, Yang, Wu, Li & Tseng, 2014). While John Dewey emphasized the significance of reflective learning in 1933, Schön underlined the importance of how reflective applications could be carried out in 1983 (Ryan & Ryan, 2012). Yasin, Rahman and Ahmad (2012) claimed that reflective learning encourages learners to a deeper understanding and it creates an opportunity for students to be able to understand their own learning processes. Besides, the reflective learning is appropriate for improving lifelong learning skills of learners. It also contributes to learners to develop new experiences by using their previous skills. Although arguments are put forward in the literature in the last 20 years about the fact that reflective learning improves learners' skills and provides them with deeper understandings (Rushton & Lahlafi, 2013); Liou (2001), it is claimed that reflective applications are a dominant paradigm in teacher education. Liou (2001) argued that reflective applications are to increase teachers' awareness about instruction and cause a positive start in teaching practices. Schön (1987) very much like Liou claimed that reflective applications are an important factor that improve professional activities (Selmo & Orsenigo, 2014). Kilpatrick, Hart, Najee-ullah and Mitchem (1997), on the other hand, maintained that reflective learning is a teacher change model that started in 1980s. It offers a systematic structure to the educators. Also, teachers are offered the opportunity of reflecting their experiences to the learning-teaching process by means of reflective learning. Besides, Kilpatrick et al. (1997) argued that teachers have the chance of discovering their applications and restructuring their new knowledge with this model. Some other researchers have also argued that the reflective learning approach presents

some practical values and is not limited to a formal structure. Along with this, the reflective learning approach that provides learning-teaching process with a significant perspective, offers teachers the chance of improving their instructional implementations in the direction of students' needs (Galea, 2012). The reflective learning that is considered to be an important factor both for change in students' behaviour and cooperation among teachers (Fatemipour, 2013) also plays an important role in bringing up prospective teachers. The reflective learning that additionally helps prospective teachers to think like a teacher is seen as an indivisible part of teacher education (Jay & Johnson, 2002). Canniford and Young (2014), furthermore, claimed that although there is numerous illuminating research on the significance of reflective implementations, the research on the instruction of techniques of these basic skills is only little. Therefore, they emphasised the need for such research. In this regard, the current research will be considerably valuable for the existing literature.

3. Methodology

This research is both qualitative and quantitative oriented. Therefore, it has a mixed method where both qualitative and quantitative research techniques are reserved.

Selection of Participants

This study is carried out with 62 prospective teachers in total who study at the Near East University. Fraenkel and Wallen (2006) pointed out that there is not a certain rule that specifies the size of the experimental research group. Thus the number of prospective teachers of scenario based group and reflective learning group is seen sufficient. The study is carried out within the scope of "Teaching Practice" course that is taken by the final year prospective teachers. The scenario based learning group is consisted of 32 prospective teachers while the reflective learning group is consisted of 30 prospective teachers. The applications lasted for 12 weeks. In order to distinguish the scenario based learning group from the reflective learning group, the school numbers of prospective teachers are taken into consideration. The last digits of school numbers of prospective teachers are only taken into account. The prospective teachers who have odd numbers in the last digits of their school numbers are included in the scenario based learning group while the ones who have even numbers in the last digits of their school numbers are included reflective learning group. As soon as the groups are separated from each other, each group is assigned with pre-test (achievement test) in order to evaluate whether the groups are equal or not in terms of achievement. The results of the "independent samples t-test" are given below in table 1.

Table 1. Pre-Test Score Distributions of Scenario Based Learning Group and Reflective Learning Group

	Group	N	Mean	SD	df	T	P
Pre-test	Scenario based learning group	32	36.53	10.65	60	.295	.769
	Reflective learning group	30	35.73	10.6			

As it can be seen in the table above, there found no significant difference in the pre-test scores of scenario based learning group and reflective learning group ($t=.295$, $p>0.05$). The findings have revealed that both groups have equal knowledge in terms of the knowledge to be conveyed within the scope of the teacher practice course. Besides, 18 (56.2 %) of the prospective teachers are women and 14 (43.8 %) of them are males in the scenario based learning group whereas in the reflective learning group 15 (50 %) of the prospective teachers are women and 15 (50 %) of them are males. It is also significant to point out that all the prospective teachers who joined the study are Turkish Cypriots and the courses are mother tongue (Turkish) based. The prospective teachers who joined the study will work at secondary or high schools after their graduation.

Data Collection Instruments

All the data collection instruments that are used to identify the impact on the prospective teachers' achievement and professional self-competence perceptions of scenario based learning group and reflective learning group are explained in the following.

Multiple Choice Academic Achievement Test

Multiple choice academic achievement test is developed by the researchers (Authors, 2015) and is applied for two different purposes. First of all, the academic achievement test is used for forming the groups before the application has commenced. Whether there is a significant difference in the knowledge and skill levels of prospective teachers who joined scenario based learning group and reflective learning group regarding teacher practice course is simply determined with the multiple choice academic achievement test. Therefore, strict attention is paid for both of the groups to have a homogenous structure. Another purpose of having multiple choice academic achievement test is that to determine which of the two approaches is more efficient in teacher education. The multiple choice academic achievement test is used before (pre-test) and after (post-test) the activities in order to find out about the efficiency of the scenario based learning and reflective learning approaches on the academic achievement of the prospective teachers.

The multiple choice academic achievement test is consisted of 35 items in the first stage. However, the test is sent to the experts (N=10) for obtaining their opinions to determine whether the items of the test are appropriate in terms of their content validity or not. Atılgan, Kan and Doğan (2006) claimed that content validity is about to what extent a test covers the desired behaviour that are intended to be measured. They also added that one of the methods of determining content validity is to consult for experts' opinion. Within this context, experts' opinion is obtained to determine the content validity of the test. Besides, the analyses of validity and reliability of the data are done after a pre-application that is carried out to identify whether the data obtained are appropriate in terms of validity and reliability. KR-20 internal consistency reliability of the multiple choice academic achievement test is found as 0.89. Range of the item difficulty indicies of the test is between 0.40 and 0.80 and the mean of the item difficulty indicies is determined as 0.52. This proves that the difficulty indicies of the items in the tests display a normal distribution (Atılgan, Kan & Doğan, 2006). The item discrimination indicies of the test is accepted as 0.30 and the items that are below the value of 0.30 are removed from the test. So, the test is finalized with 22 items after it was gone through certain analyses. The items of the test are designed to measure the knowledge and skills of the prospective teachers that are gained during the 12 week course. For scoring, the technique of 1-0 is used. 1 is given to the prospective teachers who answered correctly; 0 is given to the ones who left blank, skipped, answered incorrectly and chose more than one option. Total of the test is assessed over 100 points. The prospective teachers are assessed over 100 points from the test they did before and after the application. The mean of the scores of both tests is formed their actual performance.

Professional Self-Competence Scale

"Self-competence perception scale regarding teaching profession" was developed by Veznedaroğlu and Keser (2005) in order to determine prospective teachers' self-competence perceptions. The scale is composed of 28 items. Besides, the whole scale has positive statements and is 5 point Likert type (while 5 represents "always", 1 represents "never"). In a study of Veznedaroğlu and Keser (2005), the Cronbach's alpha value of the scale was found to be (0.92). In this study, however, the same value is found to be (0.90). From the data obtained it is so clear that the scales in both of the applications have offered reliable results. Some of the statements that are placed in the scale are as follows: "I can determine the learning needs of students", "I can choose effective methods and certain techniques in order to teach skills regarding the subject to be taught", "I can decide which activities should be implemented for which subjects during doing the course", "I can determine students' readiness level", "I can allow individual studies that are appropriate for classroom activities".

Interview Form

Interviews are carried out with both scenario based learning group and reflective learning group in order to determine the efficiency of the applications. The literature is reviewed and experts' opinions (n=5) are taken for the interview form that is prepared by the researchers themselves. The form is composed of 2 items. The first item is "What are your thoughts about bout the activities carried out throughout the course?" and the second item is "What are the advantages and disadvantages of applications carried out during the course?".

Preparing the Scenarios

The scenarios that would be used in the scenario based learning group are prepared by the researchers. A particular attention is paid by the researchers to get all the scenarios ready by themselves as preparing scenarios require expert knowledge. Additionally, skill based scenarios are used in the research as they are indicated to be somewhat appropriate for professional education (Karaçanta, 2013). Besides, before preparing scenarios a set of interviews are arranged with the prospective teachers who took teaching practice course in the previous terms to determine what sort of classroom problems they observed on their internship days. In other words, the problems observed by the prospective teachers in their internship schools are taken into consideration. Similarly, in the process of preparing scenarios by taking the characteristics of the target group into account, a particular attention is paid to prepare scenarios appropriate for the levels of prospective teachers.

Application

The application for this research lasted for 12 weeks. First of all, an achievement test (pre-test) is implemented to determine whether the knowledge level about teaching practice course of both groups is equal or not. In addition, both groups are implemented with the self-efficacy perception scale for teaching practice at the beginning of the application. The data, on the other hand, that are obtained from the pre-test and professional self-competence scale are analysed and the result showed that both groups are alike in terms of their previous knowledge regarding the course as well as their self-competence perceptions. The applications that lasted 12-week in both groups were carried out by one of the researchers. The main reason why the whole application was carried out within the scope of the "teaching practice" course is that the course is a final year final term course. The prospective teachers take most of their pedagogic courses before taking "teaching practice" course. Thus they find the opportunity of applying their present knowledge before starting their profession. Another reason why this course was preferred by the researchers is that the prospective teachers have the maturity of practicing teaching in a real teaching environment in the final term. Besides, edmodo that is an educational social network was used both in scenario based learning group and reflective group throughout the application. First of all, the researcher opened accounts for each of the group over edmodo and enabled prospective teachers in both groups to be members by entering their course codes into the system. Additionally, the researcher provided 2 hour education for the prospective teachers in both groups regarding the use of edmodo before the application. All the sharings in both of the groups were announced to the prospective teachers over edmodo at desired time. Besides, the researcher gave assignments to the prospective teachers over edmodo and collected them over edmodo again. In addition, the researcher gave feedback regarding the assignments over edmodo. The screen captures concerning edmodo application is given below (Figure 1).

The prospective teachers in the scenario based learning group were asked to have discussions and do research in carrying out activities regarding the course. The prospective teachers were only offered the present situation with the scenarios and they were asked to search for the details of the event. Besides, the scenarios were given to the prospective teachers over edmodo in the scenario based learning group a few days before the course. So, the prospective teachers in group joined the course after they read the scenarios. In the course activities, prospective teachers carried out discussions with their peers regarding the problems occurred in scenarios. They conducted research by making use of various databases and sources in order to solve the present problem. In addition, at the end of the research the prospective teachers prepared reports regarding the solution of the problem by dividing themselves into small groups of 3-4. Each group presented their reports in the classroom environment and received immediate feedback and evaluations.

After the reports were presented in the scenario based learning group, the prospective teachers had the opportunity of evaluating both the learning process and themselves and their friends. Thus it is aimed to make the targeted activities more effective. In the reflective learning group, on the other hand, learning writings, which are one of the approaches of developing reflective thinking, were used. Two column writings were preferred in this group.

There are 2 purposes of using two column writings in the reflective learning activities. The first one is to record either learning content or method; the second one is to record students' learning regarding their reactions and reflections (Ünver, 2005). The prospective teachers in the reflective group reported the facts and questions they gained concerning the subject discussed every week. Besides, the prospective teachers asked themselves questions such as "What did I see?", "What did I learn?", "What did I hear?" before starting writing their reflective writings. After these questions, they analysed their educational lives for the answers and created their reports. The prospective teachers also added their reflections about learning into the reports they created. Again, the researcher as being the teacher in the reflective group posed these questions to the prospective teachers respectively: "What are the most important three things that you have learnt in this course?", "What did this course make you decide to do after words?", "What did this course make you give up after words?", "What did this course make you decide to continue?", "Are there still any questions in your mind that keep you busy after this course?", "What are the questions you think that remained unanswered in the course?", "What did you wish to learn in this course?". Besides, not only the researcher but also the prospective teachers posed questions to each other in the course. Finally, the prospective teachers in the reflective learning group were asked to prepare concept maps and lesson plans. So, the prospective teachers had the chance of understanding whether they have enough knowledge about the concepts they prepared with the help of this activity or not as well as seeing the properties of relations between concepts. In the meantime, the researcher provided the prospective teachers in the reflective learning group with negative and positive feedback regularly regarding the reports, lesson plans and concept maps that they prepared. At the end of each application in both groups, face to face interviews were held with the prospective teachers who were volunteers. The interviews that lasted between 10 and 15 minutes were tape recorded. Thus it was aimed to determine the feelings, thoughts and views of both groups concerning the applications.

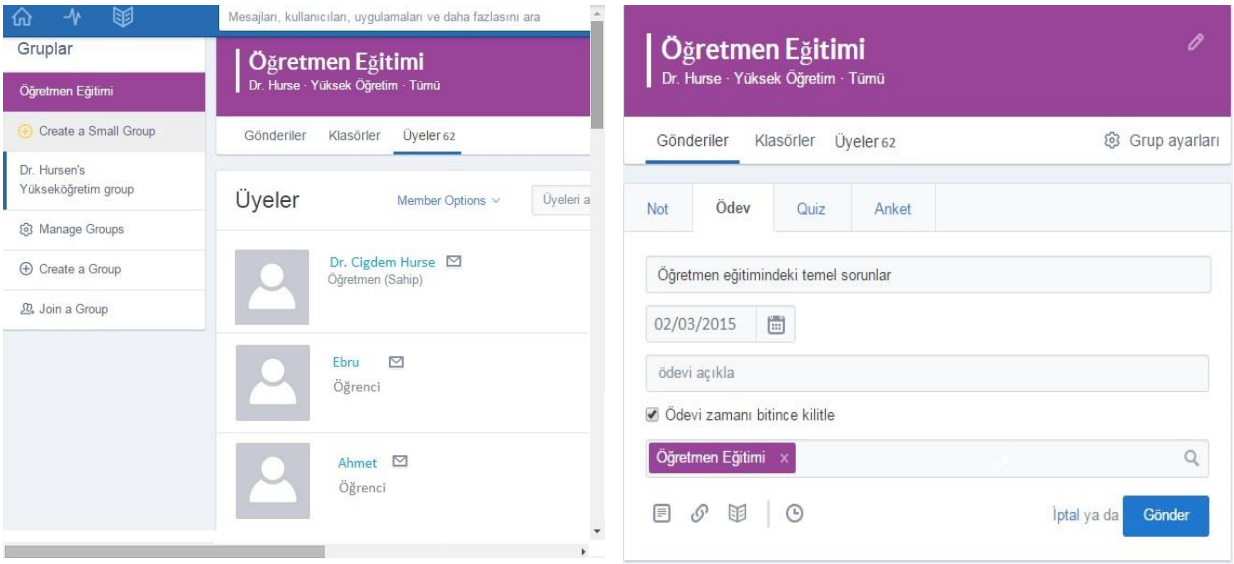

Fig. 1. Edmodo Application

Data Analysis

In the research, the analysis techniques of percentage, mean, standard deviation, independent samples t-test and repeated measures ANOVA were used for analysing the quantitative data. The values obtained at the end of the analysis were interpreted with the

significance level of 0.05. The qualitative data that were by an audio recorder are analysed by the interpretive descriptive analysis technique. In this analysis technique, the data obtained were classified according to their themes and were interpreted by the researchers.

4. Results

The results that were reached regarding the aims of the research are given below.

The Findings regarding the Academic Achievement Scores of Scenario Based Learning Group and Reflective Learning Group

The analysis of repeated measures ANOVA was used to determine whether there was a significant difference at academic achievement levels of scenario based learning group and reflective learning group. Before the application, academic achievement test as a pre-test was employed to determine whether the knowledge levels of prospective teachers regarding teaching profession was equal or not. It was discovered that there was no significant difference in the knowledge levels of prospective teachers in both groups (See Table 1). At the end of the application, the repeated measures ANOVA was adopted to find out how efficient the approaches of scenario based learning and reflective learning were over the achievement of prospective teachers as well as to see whether there was a significant difference between the two groups or not. The results of the repeated measures ANOVA are given in Table 2 below.

Table 2. Academic Achievement Score Distributions of Scenario Based Learning Group and Reflective Learning Group

Source of variance	Sum of squares	df	Mean Square	F	P
Intercept	358467.668	1	358467.668	4.900	.031
Group (Experimental/ Control)	844.765	1	844.765	369.124	.000
Error	10343.921	60	172.399		
Factor1(Pretest-Posttest)	38643.271	1	38643.271		
Factor1*Group	**606.368**	**1**	**606.368**	**5.792**	**.019**
Error	6281.350	60	104.689		

*Significant at the .05 level of confidence

At the end of the analysis carried out, it was found that there was no significant difference in the pre-test scores of scenario based learning group (M=36.53) and reflective learning group (M=35.73), however; their post-test scores declared a significant difference (t=2.966, p<0.05). A significant difference was found regarding the achievement levels for the benefit of scenario based learning group when the post-test scores of scenario based learning group (M=76.28, sd=12.71) and reflective learning group (M=66.63, sd=12.88) were looked at. Besides, the change in the achievement scores of prospective teachers who joined the activities both in scenario based learning group and reflective learning group before and after the application were tested through the repeated measures ANOVA analysis. It is important to point out that the results of the repeated measures ANOVA analysis were also found in favour of scenario based learning group (M=76.28) with a significant difference ($F_{(1-60)}$=5.792, p<0.05) when the achievement levels of scenario based learning group and reflective learning group were taken into evaluation. Therefore, this finding of the study proved that the activities of scenario based learning group were more successful than the activities of reflective learning group regarding the achievement levels of the prospective teachers.

The Findings Regarding the Professional Self-Competence Scores of Prospective Teachers in Scenario Based Learning Group and Reflective Learning Group

Independent samples t-test analysis was adopted to determine the professional self-competence perceptions of both scenario based learning group and reflective learning group before

and after the application. In Table 3 below, the professional self-competence perceptions concerning the score distributions of both groups before and after the application are given.

Table 3. The Comparison of Professional Self-Competence Score Means of Prospective Teachers in Scenario Based Learning Group and Reflective Learning Group

	Group	N	Mean	SD	df	T	P
Pre-test	Scenario based learning group	32	3.38	.534	60	.607	.546
	Reflective learning group	30	3.30	.487			
Post-Test	Scenario based learning group	32	3.96	.623	60	.489	.627
	Reflective learning group	30	3.89	.451			

As it can be seen in Table 3 above, there was no significant difference found in the professional self-competence perceptions of scenario based learning group and reflective learning group before and after the application. Although there was no significant difference found for both of the groups, it was found that both of the applications caused a positive increase in the professional self-competence perceptions of the prospective teachers. Before the application, for instance, the prospective teachers indicated that they feel themselves competent at "average" level regarding the statement of "I can prepare teaching activities appropriate for the subject", however, after the application, both of the groups stated that they feel themselves "very competent" in that sense. Again, the prospective teachers both in scenario based learning group and reflective learning group before the application expressed that they feel themselves competent at "average" level regarding the statement of "I can take precautions whenever students prevent teaching the lesson". This, nevertheless, changed after the application. The prospective teachers stated that they feel themselves "very competent". Another example of a similar situation is that the prospective teachers, before the application, expressed that they feel themselves competent at "average" level regarding the statement of "I believe that I have enough knowledge about the techniques of assessment and evaluation". However, after the application they indicated that they feel themselves "very competent" regarding the same statement. As it can be understood from the findings obtained, both scenario based learning approach and reflective learning approach had a positive impact on the professional self-competence perceptions of the prospective teachers.

The Views of the Prospective Teachers in Scenario Based Learning Group and Reflective Learning Group Regarding the Applications Carried Out

In the research, it is aimed to determine the views regarding the applications carried out in scenario based learning group and reflective learning group. While the views of the prospective teachers regarding the scenario based learning approach were determined on the one hand, on the other hand the prospective teachers' views regarding the reflective learning approach were determined. Also, the prospective teachers in both groups were asked what they felt and what their emotions and thoughts were concerning the course at the end of the application. The data obtained from the prospective teachers' views are grouped under four main themes. The themes and the groups that are in those themes are summarized in Figure 2.

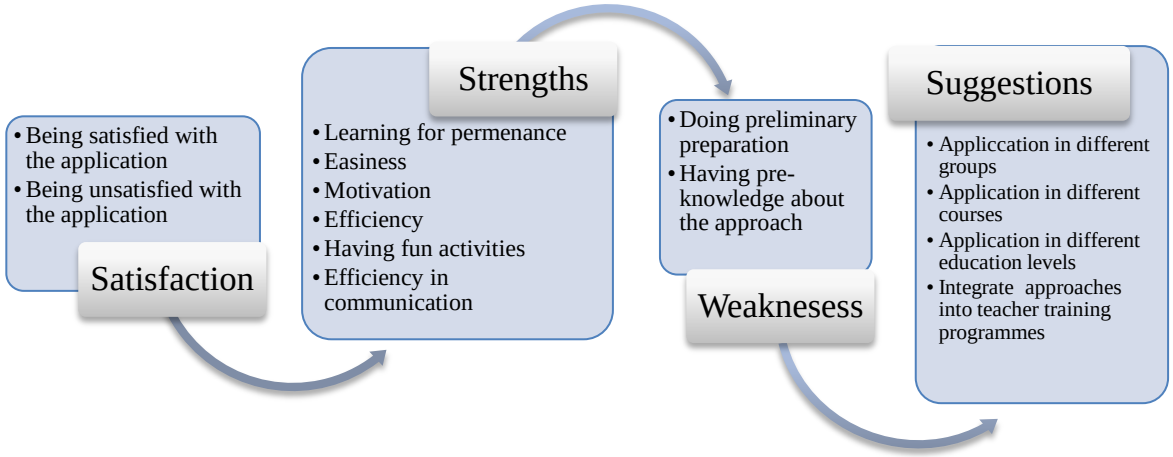

Fig. 2. The views of the prospective teachers regarding the application

As it is seen in Figure 2, the prospective teachers who joined the study expressed their views regarding the applications they took part. The views of the prospective teachers are grouped in four different themes. They are: "satisfaction regarding the application", "strengths of the applications", "weaknesses of the applications" and "recommendations of prospective teachers regarding the applications". Again, the themes that are mentioned above are classified within themselves.

The prospective teachers in the scenario based learning group stated that they were extremely satisfied with the applications. They emphasised that these applications eased their learning of many abstract subjects. One of the prospective teachers who joined the scenario based learning applications stated her satisfaction with these words: "...I clearly caught the chance of understanding how I can perform teaching with the scenario based learning applications. Those applications provided me with a different viewpoint. I am so glad that I am part of it". Another prospective teacher declared his views saying that "...I strongly believe that these applications will be remarkably useful for my future profession. I wish we had the same chance of doing our rest of the courses with real life experiences as we did in this course". Another prospective teacher stated her satisfaction with these: "...I had the opportunity of encountering a number of different activities in this course. I had fears of teaching what I have learnt to my students. However, now I feel confident about using scenario based learning applications in my profession which will ease conveying my knowledge to my students. I am hopeful that I will be useful for my students in the future". In this regard, it can be concluded from the views of the prospective teachers above that they are satisfied with the applications. Majority of the prospective teachers who joined reflective learning applications, on the other hand, stated that they are also happy with the applications. The words of one of the prospective teachers from the reflective learning group revealed that she is satisfied with the applications. She says: "...with these application I felt myself valuable since I was quite active in the course and my views were treated respectfully". Another prospective teacher said "...I felt myself as a real teacher...I was given new point of views and my horizon was widened through the reflective learning applications". Only few of the prospective teachers who joined reflective learning applications declared that they had some difficulties at the beginning and felt uneasy about the approach because they had never encountered such an approach before. One of them said: "...it was my first experience with such an approach and I had fears regarding the course" so he confessed that he had certain difficulties in adapting himself into the course. Similarly, another prospective teacher said: "...I felt very desperate when I first came across with the reflective learning applications and did not know what to do". Again, a prospective teacher from the reflective learning group said: "...I could not understand the logic of the reflective learning applications at the beginning". The views of the prospective teachers so far have shown that they had fears regarding the reflective learning applications at the beginning; however, it is believed that this was because the prospective teachers had never come across such reflective learning activities before.

Another theme that is emerged from the views of the prospective teachers is that the strengths and weaknesses of the applications. The prospective teachers in both groups evaluated the strengths and weaknesses of the applications they took part in. Therefore, the data that were collected from the prospective teachers' views revealed that they have common opinions over the strengths of the applications. The prospective teachers stated that both scenario based learning activities and reflective learning activities provide permanence and easiness in teaching in learning. Likewise, the prospective teachers in both groups stressed that the applications motivated and amused them throughout the course. One of the prospective teachers said: "…in the courses I discovered that learning and teaching are much quicker with the scenario based learning approach". In a very similar way, another prospective teacher from the reflective learning group said: "…I did not expect that there would be a lot of fun in this course. The course was full of fun and was effective, too". Besides, the prospective teachers from both of the groups stated that everybody was active and there was an effective interaction among them throughout the course". One of the prospective teachers from the scenario based learning group explained what had been said above with these words: "…we all participated actively in the class and listened to each other …we gave answers to each other's comments and we criticised each other on the basis of mutual respect…for the things that I did not understand the teacher was there ready to answer immediately". Another teacher from the reflective learning group this time explained the situation he was in with these words: "…the reflective learning applications seemed to me different at the beginning and I had hesitations about what to do; however, I got rid of all the hesitation by help of my teacher…at every stage that I was locked the teacher gave me effective explanations…also, we worked collaboratively with each other, we helped each other and finally we produced good things". Another prospective teacher who joined the reflective learning applications said: "…I learnt how to handle with problematic student behaviour that I may come across during performing teaching during my future career". As it can be understood from the words of the prospective teachers, they share similar views regarding the strengths of the applications.

When the weaknesses of the applications of both scenario based learning group and reflective learning group are examined, it is found that the teachers in both of the groups are in agreement that the teachers who joined the scenario based learning applications do not have any deficiencies regarding the application. One of the prospective teachers from the scenario based learning group said: "…the applications were excellent…nothing was missed out and I learnt many useful things". Nonetheless, only few of the teachers who joined the reflective learning applications claimed that the reflective learning applications required a well organised preparation regarding the course. Otherwise, they believed that this approach would not be effective. It is also added that experts are needed for the reflective learning applications to be performed properly. One of the teachers who joined the reflective learning applications expressed his thoughts with these words: "…the reflective learning applications are important from the learning point of view, I believe; however, for these applications to be effective, we should be knowledgeable about them like experts". Therefore, it can be concluded that findings of the study indicate that prospective teachers found scenario based learning applications easier and more concrete.

Lastly, the prospective teachers made recommendations regarding the applications they participated in. They indicated that both scenario based learning applications and reflective learning applications should take place in different courses, also. One of the prospective teachers in the reflective learning group put forward his recommendation with these words: "…my teaching experience has become much more efficient with the reflective learning applications. I had the chance of looking at this course with a different viewpoint. I think this application should be in our other courses". Another teacher from scenario based learning group this time in a very similar way said. "…new things are taught to us with different scenarios and this helps us not to forget them… I suppose I will not forget them easily…I wish we had these applications in other courses as well". Again, some prospective teachers in the scenario based learning group recommended that these applications should not only be arranged for prospective teachers, they should also be arranged for students at other educational levels and for different disciplines. One of the prospective teachers, for instance, presented her recommendation with these words: "…the scenario based learning applications motivated us and we had lots of fun while we were learning…therefore, applications like these should also be arranged for students at other educational levels. Student groups at lower educational levels will learn better and will have fun while learning". The prospective teachers who

took part in the reflective learning applications, on the other hand, recommended that reflective applications can be conveyed to teachers through in-service training. Also, the prospective teachers in both groups arrived at a consensus that these approaches should be integrated into the teacher training programmes. While one of the prospective teachers who presented her views said: "…the scenario based application that I participated in made my education more qualified…I believe all curricula should be designed according to these approaches", another prospective teacher said: "…it will be very useful to have reflective learning applications in other courses". In conclusion, the findings of the study indicated that the applications in both groups are efficient.

5. Discussion and conclusion

In this research, it is aimed to determine the impact of academic achievement and professional self-competence perceptions of the prospective teachers of scenario based learning approach and reflective learning approach. At the end of the applications, which lasted 12 weeks, it is found that the academic achievement levels of the prospective teachers in the scenario based learning group demonstrated more increase than the prospective teachers in the reflective learning group. Therefore, this result shows that the scenario based learning approach is more efficient for the academic achievement levels of the prospective teachers. Also, a similar result is reached through the interviews that were conducted with the prospective teachers. The prospective teachers in the scenario based learning group pointed out that they learn more easily with that approach. They also added that the knowledge they get is more permanent. Besides, at the end of the literature review it is found that the scenario based learning approach created a positive impact on the achievement of the learners and also it offered permanence in learning (Özsevgeç & Kocadağ, 2013; Ersoy & Başer, 2011). Gossman et al. (2007) in their study emphasised that real life scenarios are a good way for learners to conduct effective learning. Again, the prospective teachers in the scenario based learning group stated that they could easily convey what they learn with this approach into their professional lives. Sorin (2013) in his research got similar findings. Sorin (2013), in his research pointed out that the applications of scenario based learning is like a bridge between theory and practice in teacher education. Thus what Sorin (2013) argues coincides with the findings of this research.

Another finding of the research shows that there is a considerable increase in the professional self-competence perceptions of the prospective teachers in the scenario based learning approach and reflective learning approach. This finding created a significant impact on the professional self-competence perceptions of the prospective teachers of both scenario based learning approach and reflective learning approach. Veznedaroğlu and Keser (2005) reached similar findings in their study. In their study that was carried out with prospective teachers, Veznedaroğlu and Keser (2005) found that the scenario based learning applications increased the self-competence perceptions of prospective teachers regarding their teaching profession. Within this context, the study of Veznedaroğlu and Keser (2005) supports the findings of the current study. Again, Yetık, Akyuz and Keser (2012) emphasised that the scenario based learning environments help developing prospective teachers' problem solving skills. They also added that this approach has a very important place in teacher education. In a very similar vein, Köksal and Demirel (2008) in their studies revealed that reflective learning activities provided positive contributions to the planning, application and evaluation processes of the prospective teachers. Besides, Tok (2008) expressed that reflective activities are effective for the attitudes and performances of the prospective teachers regarding their teaching profession. In fact, they stressed the importance of reflective learning approach in teacher education. Again, Selmo and Orsenigo (2014) in their studies stated that reflective applications are a good learning tool in teacher education and they believed that such applications are quite useful for teachers.

At the end of the 12-week applications, the views of the prospective teachers in both groups regarding the applications are also taken. At the end of the applications, the prospective teachers in the scenario based learning group stated that conveying knowledge through the scenarios in teaching practice course is considerably effective. They also added that they would be very happy to use this approach in their professional lives. Likewise, most of the prospective teachers from the reflective learning group stated that they were satisfied with the reflective learning applications. Again, the prospective teachers from the reflective learning group said that they felt themselves as real teachers. They also added that they gained certain ways of handling with problematic student

behaviour through the reflective learning approach. Duban and Yelken (2010) by claiming that reflective learning in teacher education contributes to establishing a bridge between cognitive knowledge and an application, support the prospective teachers who were happy with the reflective learning applications. However, only few of the prospective teachers from the reflective learning group stated that they had some difficulties in adapting themselves into these applications when they first came across with them. Wongwanich, Sakolrak and Piromsombat (2014) reached similar results in their studies with teachers. The teachers in the study that was carried out in Thailand by Wongwanich and his friends pointed out that they found reflective learning applications "unpleasant". Another study that was conducted in 2001 and lasted 6 weeks with 20 prospective teachers revealed that the reflective applications did not contribute to the improvement of the reflection of prospective teachers. Nonetheless, in this study the prospective teachers experienced some problems only at the beginning of the reflective learning applications. After some time, these problems disappeared, however. Therefore, within this context the results of the study indicated that there is a need for doing a well thought and well organized plan at the beginning of the applications. Also, there is a necessity to direct the learners regarding the applications.

6. Recommendations

The first reactions to the reflective learning applications of the learners and the reasons for these reactions should be researched with more details in the future studies of reflective learning. Besides, the results of the future studies regarding reflective learning applications should be compared to the results obtained from this current study. Again, it is recommended that researchers can have the applications of scenario based learning and reflective learning in other pedagogic courses apart from the teaching practice course. Along with all these, it is recommended that such research can also be carried out for teachers teaching at different levels of education in the future and parallel to this, educational in-service programmes are recommended to be organised.

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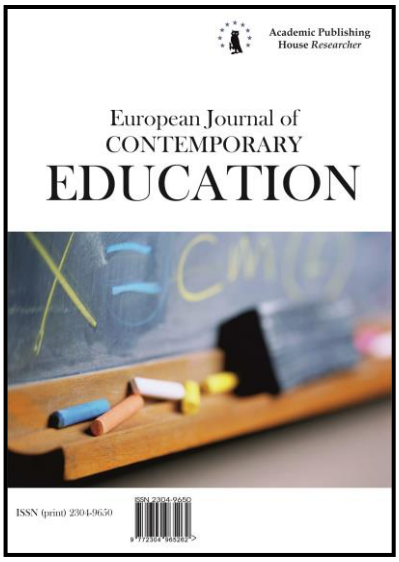

Psychological and Pedagogical Support of the Formation of Professional World Outlook of the University Students

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Abstract

The research urgency is caused by necessity of the accumulation of human capital as the main factor of economic growth. The purpose of this article is to identify methods of psychological and pedagogical support of formation of professional outlook of the university students. Methodological basis of the research was the principle of acmeology, which allowed to consider professional outlook as a set of special knowledge, value orientations, ways of activity, influencing the formation of professional competencies, readiness for lifelong learning, and competitiveness on the labour market. The main results of the study are to identify informational, motivational, activity-methods of psychology-pedagogical support. The significance of the results is that informational methods (lectures, discussions, lecture-discussions) is aimed at assimilation of special knowledge, which became a belief and contributes professional views of the future specialist. Motivational techniques (exhibition of achievements of the students, the construction of individual educational trajectories) promote awareness of belonging to a professional community, the formation of relatively autonomous and sustainable system of internal determinants of professional activities (interest, social, group, personal values). Activity methods (research work of students, internships) provide a co-creative artistic search teacher and student the solution of existential problems of professional activity and the formation of an integrated system of beliefs, attitudes, values and skills. Performance criteria methods of psychological and pedagogical support reflect a relationship of professional ideals, values related to the chosen profession, readiness for

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lifelong learning, self-organization and competitiveness on the labour market. The criteria of the effectiveness of the methods of psychological and pedagogical support reflects a relationship of professional ideals, values related to the chosen profession, readiness for lifelong learning, self-organization and competitiveness on the labour market.

Keywords: professional worldview, the principle of acmeology, university, higher education, methods of psychological and pedagogical support, information methods, motivational methods, methods of activity.

1. Introduction

The research urgency is caused by the necessity of accumulation of human capital as the main factor of economic growth. Human capital is formed and developed in the process of professional socialization and education of students (Kozhanova et al., 2016). Human capital is characterized as the set of knowledge, skills, abilities, motivations, having social value. Their accumulation in the conditions of modern civilization is a faster pace and is leading the strategy for the development of a modern economy and society as a whole (Pugacheva, Filippova et al., 2016).

Modern society confronts universities with the task of preparing graduates who should be able to: navigate the changing life situations, independently acquiring the necessary knowledge and apply them in practice to solve various problems, to throughout life to have the opportunity to find their place in it; to think critically, see problems and seek efficient solutions, using modern technologies by themself; to clearly understand where and how acquired knowledge can be applied; to generate new ideas, think creatively; to work competently with the information and extract the knowledge (to collect the necessary for the solution of a particular problem facts, to analyze them, to do necessary generalizations, comparisons to similar or alternative variants of the decision, to establish statistical and logical patterns, make reasoned conclusions, to apply the lessons learned to identify and solve new problems); to be sociable, contact in various social groups, to be able to work together in different areas, in different situations, preventing or skillfully leaving any conflict situations; to work independently on the development of personal morality, intelligence, cultural level (Akhmetov, Kirillova et al., 2016; Islamov et al., 2016; Lunev, Pugacheva & Stukolova, 2014).

This actualizes the need of formation of professional outlook of students, which affects the professional development and professional identity formation of readiness for lifelong learning, self-organization and competitiveness on the labour market and expresses the qualitative characteristics of the subject of work (Khairullina et al., 2015). The purpose of this article is to identify methods of psychological and pedagogical support of formation of professional outlook of university students.

2. Research methodology

The leading principle of the study was the principle of acmeology allowing to consider professional outlook as a set of special knowledge, value orientations, ways of activity, influencing the formation of professional competencies, readiness for lifelong learning, and competitiveness on the labour market. The principle of acmeology led to the identification of core components of professional ideology (Erdyneeva et al., 2016). The structure is relatively stable way of organizing the elements of the system. The concept of "structure" makes primarily one element, the stability of the object, so that it retains its quality under changing external or internal conditions (Akhmetov & Terenteva, 2013). The following structural components of professional ideology were found.

First, the knowledge that combines knowledge, which became a belief and causing the eyes of man. Beliefs we consider knowledge as experienced by the man who became the determinant of his will and determining the focus of activity. Beliefs are ideas that are embodied in actions, and actions illuminated by the idea. Beliefs begin where the consciousness rises above the facts, he sees a generalized reality, the world in all its diversity. Views are taken by the person as a reliable knowledge, ideas, theoretical concepts, assumptions. They explain the phenomena of nature and society, serve as guidelines in the behavior, activities, relationships. The views express the individual position of the person, his interests, needs, aspirations, opinions, judgments, evaluation of objects and processes with specific social positions. Beliefs and attitudes – is the highest synthesis of the conscious and internally accepted knowledge that determines the direction of all life and human activity.

Second, the value component. It combines the values of: a) social (a set of ideas, representations, norms, rules and traditions governing the activities of the society), b) the group (ideas, concepts, and standards for the operation of certain legal institutions), c) personal (socio-psychological education, which reflect the goals, motives, ideals, installation).

Thirdly, the activity component, including ways and means of activity and communication. Active component is dialectically interrelated with the corporate culture and ethics: they cause each other (Akhmetov et al., 2016).

Identifying knowledge, values, activity-related components in the structure of the professional world due to the subject-object characteristics of professional activity. The objectivity of the professional activity is based on normally, legal support (Lunev, Pugachova & Stukolova, 2014a). The subjective component is the integration of meaningful components of professional ideology (beliefs, attitudes, values, action) (Yepaneshnikov et al., 2016). The process of education is the development of the activity: educational – training and professional – a real professional. The efficiency of this process dialectically interrelated with the formation of professional world outlook (Kamasheva et al., 2016). Therefore, the efficiency of formation of professional outlook improves, provided psychological and pedagogical support. The process of formation of a professional outlook should be in the form of a co-creative artistic search teacher and student decisions are not individual tasks, and existential (universal) problems. The result of this process is ground, as the formation of professional world outlook (Petrova et al., 2016). This leads to the allocation in the structure of psychological and pedagogical support several components paired with structure-forming components of the professional world: knowledge, including assistance in the formation of beliefs and attitudes; value, providing support in the process of learning social, group values and developing personal values; activity, providing assistance in the development of methods and means of activities and communication.

During research following methods were used: theoretical (analysis, synthesis, generalization, systematization); sociological (observation, interviews, questionnaires).

3. Discussion

The idea of psycho-pedagogical support emerged within the concept of creation of the psychological service in educational institutions. In the scientific literature of psycho-pedagogical support is considered ambiguous:

1) scientific support of educational process with the goal of successful learning and psychological development of the learner (Ezhov et al., 2016);

2) organization of pedagogical interaction and cooperation aimed at self-knowledge of the student, search of ways of self-your inner world, the system of relations with others (Gutman et al., 2015; Pugacheva et al., 2016);

3) creation of favorable psychological and pedagogical conditions for the successful development of young people, ensuring personal development, social and professional self-formation and self-realization, preservation of psychological health of participants of educational process representing the state of subjective well-being of the individual, providing optimal opportunities for effective interaction with the surrounding world, people and will be able to implement internal resources (Ivanov et al., 2016; Terentyeva, Starodubtsev et al., 2016; Zamaletdinov et al., 2016);

4) the system of professional activity of the teacher, aimed at the creation of psycho-pedagogical conditions for the successful training, education and professional and personal development of the student (Krylov et al., 2016; Terentyeva et al., 2016). The main objective of psycho-pedagogical support – maximum support personal and professional development of students. Components of psychological and pedagogical support: the systematic tracking of social-psychological characteristics of the student and the dynamics of their development in the learning process; providing students opportunities for independent personal choices for successful learning and professional development; creation of special psychological, educational and social environment to assist students experiencing problems in learning are of great interest. These components allow to define psychological-pedagogical support as a multilevel and polymorphic education, its main function is to stimulate individual set of personality important needs of the student that lead to its fulfillment;

5) of poly-subject, dialogical relationship in teaching and professional interaction. A student in such a relationship not only takes the subject position, but also creates a very polysubject dialogic relations in the course of interactions (Ibragimov et al., 2015). In conditions of poly-subject, dialogic relations, the formation of independent thinking, self-affirming activities;

6) minimize impacts on young students negative factors, the conscious formation of a system of humanistic views of the world and their place through inclusion of boys and girls in independent, multichannel search of answers to questions concerning the meaning and purpose of life (Valeeva & Salyakhova, 2015);

7) focus on getting the real product: the formation of competencies and development of personal achievement (Sadovaya et al., 2016). Such an understanding of psychological and pedagogical support allows us to solve the following tasks: to teach students effective techniques of expression and modes of manifestations of the personality; personalized educational routes of students; integrate the forms and methods of professional education system in integrity;

8) implementation method of the training content, in which shape and develop the knowledge, skills, competence, professionally important qualities and value orientation (Ibragimov et al., 2016).

Psycho-pedagogical support is realized in three directions: scientific and professional organization of educational activity; formation and development of a highly intelligent personality of a future specialist; formation of psychological readiness to perform professional activities. Summarizing the above, we note that psychological and pedagogical support – a specially organized a continuous process to support students in developing their internal capacity to effectively achieve this goal. This definition allows you to use different methods, like lecture classes and in extracurricular activities.

4. Results

The main results of the research are the methods of psycho-pedagogical support of the formation of professional outlook. The conjugation of the components of psychological and pedagogical support and core components of professional ideology has led three groups of methods: information, motivation, activity.

Information methods are focused on the transmission and memorization of information, its interpretation and formation of beliefs or attitudes. Purposefully information methods are primarily used in the lectures. This allowed to identify the following lectures. The lecture-conversation - allows you to draw students' attention to the most important issues to determine the content and pace of presentation, taking into account characteristics of the audience. Student participation in the lecture and conversation can be achieved in many different techniques. During the lecture the teacher asks the students questions designed to determine their level of awareness of this problem. Taking into account the answers the teacher builds his further arguments. Lecture-discussion involves a free exchange of views. It quickens the learning process, stimulates students. In the beginning of the lecture the students should ask questions about previous lecture material. It is advisable to organize the discussion, gradually introducing new material. If the teacher offers discussion questions and specific situation, then it's a lecture with the analysis of a particular situation. The situation may be presented orally or as a video. For activization of activity of students at lectures is possible to invite highly qualified specialists to express their opinions on controversial issues (Pugacheva et al., 2016). Thus, the information methods include talks, discussions, etc., which can be successfully applied in the lectures.

Motivational methods include exhibition of achievements of the students, the construction of individual educational trajectories. Abstracts, scientific articles, projects, technical creativity, etc. can be presented on the exhibition. Advantage of the exhibition is a concentrated combination of exposition, personal contacts (teacher-student, student-students). During the exhibition presentations can also be held, presentation of the project, person, etc. of the exhibition of achievements can be of real and virtual. The organization of a virtual exhibition provides for the creation of special pages on the university website. We are more impressed by a virtual exhibition that allows to increase the audience awareness; that is permanent. Undoubtedly, the organisation of a personal exhibition of the student personal participation in the thematic exhibition is very stimulating for students, promote professional interest, the active shaping of subjective reality (Pugacheva et al., 2016). The construction of individual educational trajectories provides the

dialectical relationship of knowledge, beliefs, attitudes, intentions and actions, conscious and unconscious, objective and subjective. The construction of individual educational trajectories stimulates cognitive activity of students, development of professional competences, the acquisition of professional experience. On this basis, a student recognizes his or her belonging to a certain professional community and developing professional outlook.

Activity methods include: research work of students, practical training. Any activity is a developing system that has structure, its own internal transitions and transformations. The nature and characteristics of activities are determined by needs and motives, and the structure is ensured by certain actions and operations. Thus, in the activity there are two sides: the motivational needs and operational-technical ones. Motivation-the requirement of the side leads to the personal meaning of activities. Operational-technical – individual work style. Scientific-research work of students, above all, ensures the development of motivation-the requirement of professional activities. Production practice – operational-technical side of professional activities. Scientific-research work of students includes participation in competitions, contests, scientific-practical conferences of different levels, the activities of the engineering offices, training and production design. These methods include:

1) the formation of scientific beliefs and attitudes;

2) the development of instrumental values (self-direction, diligence, discipline, dedication, persistence);

3) development of skills of work with literature (independent selection of literature, catalogs, archives, information reviews, drafting of catalogues, summaries, abstracts, thematic statements), conduct research (preparation of questionnaires and conduct survey, analysis and generalization of the results of the work, the planning stages of the study, etc.), presentation of its results (public performances scientific reports, writing reviews and other such work, the justification of the results, create presentations, etc.).

For example, in the university at the initiative of students the engineering and design bureau. It brings together talented and gifted students, of various majors seeking academic activities and willing to apply their knowledge in practice. Participation in the activities of engineering and design bureau ensures the inclusion of students in the problem field of real professional activity. In turn, this is the basis of formation of professional outlook. Part of the theory activities that characterize the development of its components in time, taking into account professional due to the nature of its dynamics, is praxeology. An important provision praxeology is the recognition of any self-development activities. Activity has developed, functioning, functioning and developing. The specific self-development activities is the emergence of new and progressive elements to replace the existing old ones. The development activities can be interpreted as the development of the subject, and the activity itself. During production practice, students develop their professional beliefs, attitudes, values, learn professional skills. Production practice is the production in the context of real professional activities. This allows for the creation of a common space of the university and industry, aimed at bringing together efforts to improve quality development of students ' professional competencies, combining professional and educational standards, formation of students and specialists of professional values and value-emotional attitude to professional activity (Lunev et al., 2016).

The study involved 300 teachers, 450 university students who identified the criteria for the effectiveness of methods of psychological and pedagogical support for the formation of a professional worldview.

The research passed in 3 stages: primary, forming, final. At the primary stage research was clarified attitude teachers and students to idea the formation of professional world outlook. In the survey, teachers clarified what interested in formation students value attitude to the chosen profession – 87 %, sustainable direction on the existential (common all humans) problem – 91 %, systems professional ideals – 81 %, the aggregate of specialized knowledge and convictions, influence on the professional development students and willingness to learn through all life – 83 %. Most of the teachers – 81 %, noted that learning the student acquires knowledge and certain skills for further practical activity, as a result him personal values begin to correlate which value orientations the future professional activity.

The questioning of students showed that they are oriented to self-realization in professionally significant activity – 69 %, "mastering the profession" (the desire to master professional knowledge and to form professionally important qualities) - 73%.

Based on the results of the survey, the criteria for the effectiveness of methods of psychological and pedagogical support for the formation of a professional worldview were determined. Questioning of teachers and students showed that the criteria for the effectiveness of methods of psychological and pedagogical support include: the students' professional ideals, the value attitude to the chosen profession, the willingness to learn through life, the ability to self-organization and competitiveness in the labor market.

Based on the selected criteria, the students were given a list of ten terminal values (values-goals): social activity, career progress, labor market competitiveness and high pay, improving professional competencies, professional recognition, innovative activity, leadership, social responsibility for performance, True friends-colleagues, self-realization in professional activity. Students appropriated each value a rank number. The most significant value is one, the least significant is ten.

Criterion "Students have professional ideals" is intertwined with such terminal values as professional recognition, self-realization in professional activity. The criterion of "Value attitude to the chosen profession" corresponded to the terminal value: social responsibility for the results of activities. The criterion of "Readiness for Learning Through the whole Life" put together following terminal values: improvement of professional competences, innovative activity. The criterion of "Ability for self-organization and competitiveness in the labor market" put together terminal values: career growth, competitiveness in the labor market and high remuneration. Terminal values "true friends-colleagues", "leadership", "social activity" are not relevant to the performance criteria.

Scientifically-methodical events (scientific and practical seminars, business games, round tables) were conducted at the forming stage of the experiment to check the effectiveness of information methods with teachers in order to draw up for lectures-talks, lectures-discussions plans. The plans formulated by the teachers were successfully introduced into the educational process. For a qualitative analysis of the results of their implementation, a mutual attendance of lectures was organized.

To test the effectiveness of motivational methods, an exhibition of the achievements of students "Professional perspectives" was organized. The exhibition presents photographs, diplomas, certificates of students, confirming their participation in national olympiads in professional disciplines, competitions of professional skills.

To test the effectiveness of the activity methods, a presentation of the design and technical office of students was organized in all the academic departments of the university. At the presentation of the student showed their work, talked about the process of their creation, shared impressions. The presentation was a great success and students studying in socio-humanitarian specialties, came up with the initiative to create a workshop for socio-cultural design.

At the final stage of the study, we again offered students to rank terminal values. Dynamics of terminal students' values is shown in table 1.

Table 1. Dynamics of terminal values (values-goals) of students at the initial and final stages of research (ranking)

№	Terminal	primary stage	final stage
1	social activity	5	9
2	career growth	3	10
3	labor market competitiveness and high salary	4	3
4	perfection of professional competences	9	2
5	professional Recognition	7	1
6	innovative activity	8	6
7	leadership	2	8
8	social responsibility for the results of activities	10	4
9	true friends-colleagues	1	7
10	self-actualization in professional activity	6	5

Table 1 shows that the priorities of students have changed. At the initial stage of the study, the first three positions in the rating of terminal values were occupied by: loyal friends-colleagues, leadership, career growth. At the final stage, the first three positions were taken: professional recognition, improvement of professional competencies, competitiveness in the labor market and high salary. If, professional worldview is considered as a system of knowledge, ideals, competences, determining the intellectual and value-emotional attitude of students to professional reality, then the set of identified methods is necessary and sufficient for its successful formation.

Professional world – is not only the content but also the way of professional development activities, competitiveness in the labour market. Professional outlook is as relatively autonomous and stable system of internal determinants of professional activity, which appears in the form of a holistic, multi-level, complexly organized system of beliefs, attitudes, values, skills, competencies.

5. Conclusion

Informational, motivational, activity methods of psychological and pedagogical support of formation of professional outlook of university students were identified. The significance of the results is that informational methods (lectures, discussions, lecture-discussions) is aimed at assimilation of special knowledge, which became a belief and contributes professional views of the future specialist.

Motivational techniques (exhibition of achievements of the students, the construction of individual educational trajectories) promote awareness of belonging to a professional community, the formation of relatively autonomous and sustainable system of internal determinants of professional activities (interest, social, group, personal values).

Activity methods (research work of students, internships) provide a co-creative artistic search teacher and student the solution of existential problems of professional activity and the formation of an integrated system of beliefs, attitudes, values and skills.

Performance criteria methods of psychological and pedagogical support reflect a relationship of professional ideals, values related to the chosen profession, readiness for lifelong learning, self-organization and competitiveness on the labour market.

The results of the study allow us to outline the prospects for further research of this problem that are associated with the development of special programs of formation of professional worldview. The article may be useful for leaders and teachers of the institutions implementing programs of professional teacher education; employees of the centers of training and retraining of personnel in the selection and structuring of contents qualification of the teaching staff of universities.

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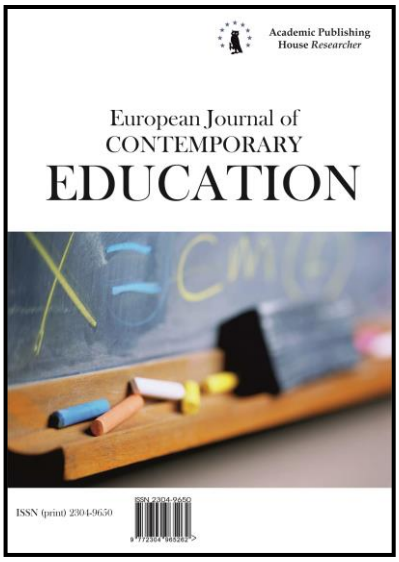

Education of Social Responsibility among Sports Schools Students

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Abstract

Research aim was to analyze peculiarities of education of social responsibility among football sports school students. We hypothesized that after the educational program sport school students will have more developed social responsibility. The total sample comprised 52 male students. Experimental group consisted of 26 and the control group of 26 football sports school students. Statistical analyses revealed that after educational program experimental group had significantly higher scores of social responsibility components: “respect” and “caring and helping”. Overall results showed significant higher effects on social responsibility in experimental group and no significant effects in control group.

Keywords: social responsibility, educational program, sports school.

1. Introduction

It was believed that social responsibility could and should be taught in a sport and physical activity setting (Parker & Stiehl, 2004). However, sport cannot always have a positive impact on personality development, especially if "winning" is emphasised (Barez, 2008). Perhaps the "emphasis on winning" installed on coaches and sports administrators, managers and agents encourage inappropriate behavior, such as cheating, excessive aggression or the use of forbidden substances for a better performance or outcome (Doty, 2006). The reputation of sport sometimes has been damaged by the increasing 'monetary' influence. The main expectations related to sport are achievement and team success. It has often been discussed in scientific articles Austin (2014) whether sport positively contributes to personality development. According to Austin (2014), sports really develop a personality, but it does not happen automatically. The intention of athletes

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is needed. In such a way, along with the proper training and coaching, which is focused on personality development, sport can become an appropriate springboard for developing personality.

In the previous studies, as well as in the present study (Juodsnukis & Malinauskas, 2014) it is understood that responsibility and social responsibility concepts and definitions are an integrative personality trait characterized by moral and ethical principles of reasonable behavior, self-conscious adoption of social norms, attitudes and values, acceptance, expression of the will and perception what consequences has the same activity of the person and other people.

Personality can be further developed through sport. Sports and physical activity experience can develop a personality, but only if the environment is structured and well designed (Doty, 2006). The first social responsibility education model created by D. Hellison (which often is referred to as TPSR – Teaching Physical and Social Responsibility), with the aim of helping social exclusion risk groups of young people to gain a positive experience which would help them to develop their personal and social skills as well as their responsibilities, both in sport and in life (Hellison, 2011). Based on the model of social responsibility by Hellison (2011), it is understood as a kind of moral obligation to respect yourself and others. The values associated with the responsibility, effort and independence, as well as the values related to social responsibility imply the respect for feelings and rights, social empathy and sensitivity (Llopis-Goig et al., 2011). The model of social responsibility by Hellison (2011), is grounded on the fact that young people are exposed to individual and social point of view can learn to become responsible for themselves and others. Students who participated in the responsibility model training on how to develop their personal and social responsibility in a gradual way gained an experience on the behavior and attitudes that will help them become responsible persons. It is important to note, that for the realization of social responsibility education model, sports game have been deployed (Hellison & Wright, 2003; Martinek, Shilling, & Johnson, 2001).

Number of research (Caballero-Blanco, Delgado-Noguera, & Escartí-Carbonell, 2013; Hellison & Walsh, 2002; Juodsnukis & Malinauskas, 2014), which have studied children and youth social responsibility aspects through physical education, physical activity, indicate, however, that there is a lack of publications, which analyze social responsibility in sports school students. The vast majority of social responsibility research has been conducted in the US. However, significant cultural differences exist between the US and Lithuania. As social responsibility development of physical culture and sports in the context of the study area is new, it is necessary to assess the sports school student's social responsibility peculiarities in Lithuania. Most of the research has been conducted in programs where students belong to groups at risk.

The duration of social responsibility education model varies: one or two months (Buchanan, 2001; Newton et al., 2006; Watson et al., 2003); up to 3 months (Hammond-Diedrich, Walsh, 2006; Whitley, Gould, 2010; Wright, Burton, 2008; Wright et al., 2004); up to 4 months (Kallusky, 2000; Walsh, 2007, 2008); one semester (Lee, Martinek, 2009; Martinek et al., 2001; Walsh, 2012).

As for duration of training sessions and frequency of weeks, most of the curriculum development process takes one hour once per week (Hammond-Diedrich & Walsh, 2006; Walsh, 2007; Whitley & Gould, 2011; Wright, 2012), sometimes one hour twice per week (Laura A Hayden, 2012; Laura Ann Hayden, 2010; Lee & Martinek, 2009; Walsh, 2012). Only a few educational programs have been carried out in two or more hours per week (Buchanan, 2001; Newton, Watson, Kim, & Beacham, 2006; Watson, Newton, & Kim, 2003).

Study hypothesis – after the end of the educational experiment the sport school students will have more developed social responsibility.

The aim of research is to analyze peculiarities of social responsibility education among football sports school students

The significance of research. This study is original because the majority of previous studies have focused on children and youth social responsibility in the context of physical education, however there is still a lack of publications that would analyze social responsibility in the field of sports training (sports schools, sports clubs, sports organizations and associations). Many studies were conducted with students who belong to groups at risk. The major part of social responsibility research is descriptive, compounded with the case studies. This study is significant because it was conducted with a wide sample and reveals the peculiarities of social responsibility development of Lithuania's sport schools students.

2. Research methods

Instruments. Modified Social Responsibility Questionnaire (Li, Wright, Rukavina, & Pickering, 2008) was used to determine social responsibility among football sport school students. Social Responsibility Questionnaire consists of 14 statements and measure aspects of social responsibility. Questionnaire consists of a series of items reflecting two aspects (two components) of social responsibility: "respect" (six statements) and "caring and helping"(eight items). Each statement should be evaluated on a six-point Likert-type scale from "strongly disagree" (1) to "strongly agree" (6). The six-point Likert-type scale was used because it eliminates any neutral answers and is one of the commonly used scales in psychological fields. Under this methodology, the average level of social responsibility, expresses the averages of 3 to 5 points.

Validity of Social Responsibility Questionnaire is estimated in previous studies (Li et al., 2008), through confirmatory factor analysis, which showed that the expected factor structure is correct: χ^2 (76) = 147.93, p < 0.0001; NNFI = 0.92; CFI = 0.93; RMSEA = 0.06. All subscales demonstrated acceptable levels of internal consistency ranging from 0.79 to 0.81. In the current study, Cronbach's alphas for subscales are presented in Table 1.

Table 1. Means, Standard deviations, Cronbach's alpha coefficients for the whole questionnaire and its subscales (components)

	Social responsibility	Components of social responsibility	
		„Respect"	*„Caring and helping"*
Mean (M)	4.58	4.85	4.25
Standard deviation (SD)	1.02	1.04	1.01
Cronbach's alpha	0.71	0.68	0.75

Educational experiment was used as a method to verify the efficiency of the educational program. The essence of the educational experiment was the social responsibility enhancing program (Table 2) for sport school students.

Statistical Analysis. Research data were statistically processed using *SPSS 18.0* (*Statistical Package for Social Sciences*). Descriptive statistics, namely means, standard deviations, were calculated. Skewness (the symmetry of a distribution) and kurtosis (the homogeneity of a distribution) coefficients were calculated to assess univariate normality because Student *t* test requires normally distributed data. Skewness and kurtosis coefficients between +1 and -1 indicated that data were normally distributed. We calculated the reliability of each dimension given by the index of Cronbach's alpha internal consistence. A preliminary analysis used the Student *t* test for independent samples, comparing the experimental group with the control group with the aim of checking whether the two groups were homogeneous. Then, the Student *t* test for dependent samples, comparing the experimental group before experiment and after it and the control group before experiment and after it, was used in order to analyse the effects of the educational program.

Sample and procedure. The educational experiment has been carried out during 2016/2017 academic years. For the educational experiment, the random serial sampling method was used to for an experimental group of 26 and the control group of 26 football sports school students (overall 52 participants). There were no significant differences between the experimental (15.68 ± 0.29) and the control (15.76 ± 0.32) groups by age (t (50) = .94; p > .05). Experimental group was from Alytus district and control group was from Kaunas district. The educational experiment aimed at evaluating the social responsibility of football sport school students before the educational programme and after it. The educational experiment was meant to enhance sport school students' social responsibility. The experimental group participated in educational program of social responsibility that included thirty-five 25 minutes long (in total 14.58 hours). For the each component of social responsibility to develop, we used the same number of training sessions (5 sessions). Education influence on control group was not applied. Table 2 shows the educational program for enhancing social responsibility in football sport school students.

Table 2. Content of the Educational program for enhancing of social responsibility in football sport school students (Prepared by authors according to Hellison, 2011)

	Components of Social responsibility	Descriptions of components	Subcomponents of educated Social responsibility
1.	*Respect*	Students may not participate in daily activities or show much mastery or improvement, but they are able to control their behavior enough that they don't interfere with the other students' right to learn or the coach right to teach, they do this without much prompting by the coach and without constant supervision.	*Respect for others*
			Respect for coach(es)
			Behavioral control
2.	*Caring and Helping*	Students respecting others, participating, and being self-directed, are motivated to extend their sense of responsibility beyond themselves by cooperating, giving support, showing concern, and helping.	*Helping others*
			Encouraging others
			Kindness to others
			Helpfulness to others

The followed stages of education were used for enhancing the social responsibility in sports school students: 1) *presentation of subcomponent*; 2) *practice*; 3) *feedback*; 4) *reinforcement of subcomponent*.

Presentation of subcomponent – the definition of the subcomponent, presentation of the examples. Learners discuss among themselves or with the educator on the importance of subcomponent**.**

Practice – learners practically assimilate presented subcomponents in order to uptake and to adapt in new situations using practical methods.

Feedback – educator must provide information about information about a person's performance of a task. Educator summarizes learners activities and results noting the positive aspects.

Reinforcement of subcomponent – practical use of subcomponents of educated social responsibility in various environments and situations with different people. The subcomponents of educated social responsibility can be applied to sports contexts and in life situations (for instance, at home or in school). Students need to be explained in what situations they can apply the developed social responsibility. For this purpose, they are given homework after each training session. The aim of the homework is to reinforce the educated social responsibility and to encourage applying it in the natural environment.

We used several methods to teach sports school students' social responsibility: *demonstration, social role performance, case analysis of the situation, small groups, agility games and group discussions*.

3. Results

Student's *t* test for independent samples showed that according to the components of social responsibility, the experimental and the control groups before the experiment did not differ

significantly according to "respect" (t (50) = -.04; p = .96) and "caring and helping" (t (50) = .56; p = .57).

After experiment significant differences were found between experimental and control groups in "respect" (t (50) = 2.31; p = .02) and in "caring and helping" (t (50) = 2.00; p = .04). Statistical analyses revealed that according to the components of social responsibility experimental group differed significantly before and after experiment (Table 3): according to "respect" (t (50) = -2.78; p = .008) and according to "caring and helping" (t (50) = -3.65.31; p = .001).

No statistically significant difference (p > .05) was found between control group of football sport school students before and after the experiment according to the components of social responsibility ("respect" and "caring and helping").

Table 3. Mean scores of social responsibility components among football sport school students, before and after educational experiment (M ± SD)

Social responsibility components	Group	Before experiment	After experiment	t
Respect	*Control group*	4.00±1.36	3.97±1.33	0.06
	Experimental group	3.98±0.96	4.70±0.88	-2.78**
Caring and Helping	*Control group*	3.74±0.85	4.15±1.32	-1.13
	Experimental group	3.87±0.85	4.79±0.96	-3.65**

Notes. (M ± SD) – Mean and standard deviation; ** – p < .01.

It has been revealed, that social responsibility level of control and experimental groups did not differ significantly before experiment (t (50) = 0.26; p = .07), but after experiment significant differences were found between experimental and control groups: t (50) = 2.37; p = .02 (Figure 1).

Overall results of social responsibility showed significant effects of educational program for experimental group (t (50) = -3.15; p = .003) and no significant effects for control group (t (50) = -0.66; p = .51) (Figure 1).

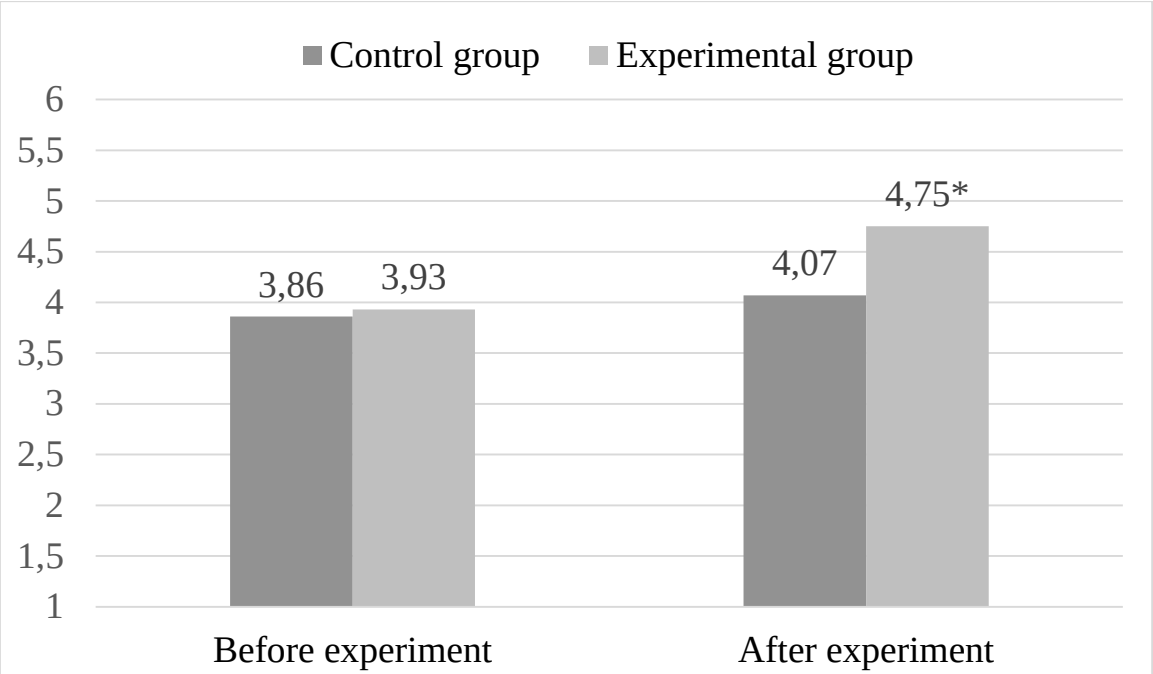

Figure 1. Mean scores of social responsibility level among football sport school students before educational experiment and after it

Notes. * – $p < .05$.

4. Discussion

The results of the educational experiment confirmed our research hypothesis. The statistical analysis revealed that after educational program experimental group had significantly higher scores of social responsibility components: "respect", "caring and helping". Overall results of social responsibility showed significant higher effects of educational program among experimental group and no significant effect for control group.

Improvements of young people have been achieved, regarding to respect component of social responsibility programs interventions. Also it was found that after the end of educational program experimental group students showed improvements in "caring and helping" ($p = .001$) and these results were similar to the results of Hayden (2012, 2010) and Walsh (2007) studies.

The review (Caballero-Blanco et al., 2013) carried out evidences and validity of the use of the social responsibility model as an intervention programs with children and young people through physical activity and sports, both in the American context and the Spanish context and most relevant results related to other effects on the participants were positive evolution regarding the participant's behaviour related to personal and social responsibility (André & Mandigo, 2013; Lee & Martinek, 2009) (Lee & Martinek, 2009; Wright et al., 2012; Wright & Burton, 2008). The programs have contributed in establishing a positive class environment (Caballero, 2012; Sanmartín, Escartí, Pascual, & Valencia, 2011; Vizcarra Morales, 2004). In this sense, an improvement in the resolution of conflicts through dialogue and a decrease in violent conducts were produced (Caballero, 2012; Escartí, Gutiérrez, Pascual, & Marín, 2010; Llopis-Goig et al., 2011; Sanmartín et al., 2011). Positive transfer of the knowledge was acquired during the programs, in contexts different from those of the intervention (Caballero, 2012; Cecchini, Montero, & Peña, 2003; Escartí et al., 2010). Positive changes in the opinions and behaviours were related to fair-play and self-control (Cecchini, Montero, Alonso, Izquierdo, & Contreras, 2007) as well as increase of the number of students who evidence a motivational orientation towards the task regarding the result, after the intervention (Vizcarra Morales, 2004).

5. Conclusion

Statistical analyses revealed that after educational program experimental group had significantly higher scores of social responsibility components: "respect" and "caring and helping".

Overall results showed significant higher effects on social responsibility in experimental group and no significant effects in control group.

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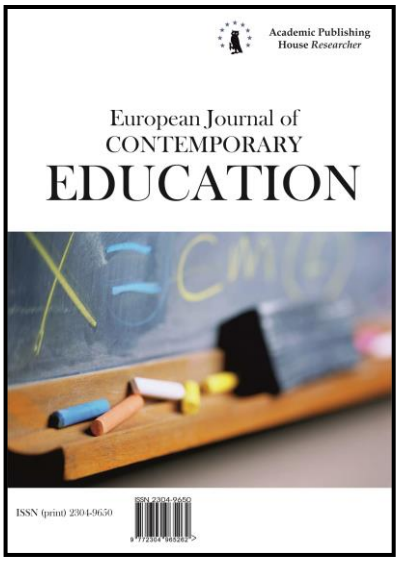

Academic Competition: Rating Race

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Abstract

The purpose of the study is to identify the factors of competitiveness among university teachers through an assessment of a modern teacher desire and abilities to be demanded professionally. Three hypotheses were put forward: about the impact of a teacher's qualification level on his competitiveness, about the motivational component role of the personnel policy, and about the improvement of research work quality as the result of competition development.

The authors conducted a questionnaire survey among Russian university teachers (N = 170) aged from 22 to 70, who were grouped into three groups according to 10 indicators of research work: teachers with high, average and low individual rating.

The study result established the correlation between the desire of teachers to reach high rating positions within the conditions of fierce competition, their quantitative indicators, the publication activity and the quality of research activity. The level of a teacher's qualification, which is one of the basic requirements for the university teaching staff, does not ensure the competitiveness of a teacher for a long period. It should be accompanied by an active publication activity of a teacher and high rates of research activity.

The study showed that the motivational component of the personnel policy is an obligatory, but an insufficient factor ensuring the professional growth of scientific and pedagogical personnel. The authors come to the conclusion about the dual effect of the rating race: the factors of competitiveness among university teachers may contribute to teaching staff quality increase and reduction. But it depends on the adaptive features of teachers.

Keywords: university teachers, personnel policy, wage, scientometric indicators, rating system, publication activity.

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1. Introduction

Rating race as a new vector for higher education development.

The trends of the world scientific space development in the context of social and economic indicators increase of the leading countries of the world led to the revision of higher education development strategy (King, 2004). This is related to the presence of a direct link between the share a state GDP spent on research and development and the publication activity of its scientists (Must, 2006). However, if recently the higher school functioned according to the model of "entrepreneurial universities", in which teachers should be aimed at an educational institution income increase by developing the links with the real sector of economy and attracting external grants, nowadays the main priority is the access of leading educational institutions to international ratings (Mautner, 2005).

The desire to create world-class universities is a political decision in fact taken by the leaders of many countries (Salmi, 2013). The higher schools of Russia, China, Japan, Korea, France, etc. are included in the rating race, which aims to strengthen academic competitiveness and to bring the most successful educational institutions to the top lines of global university ratings (Altbach, Salmi, 2011). Such ratings are more focused on the comparison of teacher's work academic and research component implementation (Vinkler, 2008). The drawing up of ratings is aimed not only to restructure scientific knowledge using status competitions, but also serves as an equalizing technology for academic stratification (Tilman Reitz, 2017).

In Russia, the change of higher education institution orientation from traditional teaching to research activity and the tasks of entering into global university ratings were formulated at the same time. Therefore, the mainstream opinion of professional community that resources are given to those educational institutions who lead the rating race (Aref'eva, 2014). Such a situation was reflected in the requirements for teaching staff activity, obliging teachers to increase their competitiveness in the world scientific space. Bibliometric indicators – the publication activity of scientists and the recognition of their publications by the international scientific community (the number of citations) became the main indicators of academic competitiveness (Markusova, 2008).

Publication activity and development imitation.

One of rating fever symptoms can be represented by the increasing publication activity among scientists from different countries. At the beginning of 2010, the international analytical agency Thomson Reuters published a short report on the public activity of the BRIC countries (Brazil, India, China, South Africa, Russia) in comparison with the undisputed leader countries. According to their data, only two countries from 50 countries as scientific leaders show negative dynamics in scientific activity – Russia and Ukraine. In particular, Russia, being in the top twenty of the most active countries in the scientific aspect, has only 1.9 % of publications as compared to total amount. The United States is an undisputed leader concerning the number and the citing of scientific publications – 22.8 %; 5.9 % of articles belong to the authors from Great Britain; 5.4 % belong to the authors from Japan (Koshkarova, Usynina, 2015). The high growth of publication activity (more than 200 % from 2001 to 2011) is demonstrated by Malaysia, Pakistan, China, Saudi Arabia, Thailand and Turkey. Countries with fast-growing publication activity improved their rating position by the number of publications significantly: Iran moved from 42-nd place to 19-th one, Portugal, Colombia and Brazil won 9-th, 6-th and 4-th rating positions (Kotsemir, 2012).

However, although the publication activity grows fast in developing countries, every fifth article is not of scientific value or published in a journal that only formally meets the requirements of a scientific one (Kirillova, Soloshenko, 2012). There is an unacceptably high level of plagiarism in academic communities (Sanna Vehviläinen et al., 2017). The examples from the higher education system in South Africa illustrate such a development imitation where scientists take part in pseudo-activities without taking into account the social value, its results or low-quality studies in order to receive material payments and rewards (Muller, 2017).

Teaching and research components of the work of a university teacher work.

The change of a professor traditional role as a teacher into a scientist with an active research activity led to the blurring of an academic profession concept. According to the opinion of a number of scientists, a teacher should not be a researcher. His job is to work with students in order to generate new experts (Martyn Hammersley, 1993). A teacher and a researcher appeal to different systems of values, which requires their deliberate integration under new conditions (Teelken, 2012) to combat archaic and inert teachers and scientists (Abramov, 2011).

The expectations for success in academic circles are changing, which requires an early career development (Kathryn, 2015).

2. Methodology

The purpose of the study is to identify the factors that develop a new generation of competitive high school teachers. At the same time, competitiveness is understood as a widely used interpretation, which in terms of the specific activity of scientific and pedagogical university staff is interpreted as the ability of a teacher to meet modern demands of social development and be demanded in his field of professional activity. A more local understanding of academic competition is that a teacher has such professional characteristics and personality traits that allow him to achieve set targets for the development of higher education increasing his personal, intellectual and scientific research potential.

On the basis of literature review and the studies on similar problems, and according to the purpose of the research work, the authors' group formulated and tested the following hypotheses: 1) within new conditions of a university teacher evaluation, the qualification of teachers (the presence of a degree and a large pedagogical experience) is not the dominant characteristic of their competitiveness development; 2) the motivational component of personnel policy is an obligatory but insufficient factor to ensure the professional growth of scientific and pedagogical personnel; 3) the aspiration of high school teachers to high rating positions provokes the emergence of an acute competitive struggle, which results in the improvement of their research work quality.

The empirical results of the study are based on the data collected at Russian higher educational institutions in 2016. The sample includes the representatives of the teaching staff at leading Russian universities (N = 170) of various fields of experience at the age from 22 to 70 years (average value – 46.90, median – 46 years, standard deviation – 3.50), including 73 (42.9 %) men and 97 (57.1 %) women, which is adequate for the sex composition of persons engaged in pedagogical activity at higher educational institutions. Among them: teachers without a degree – 23 (13.5 %); Candidates of sciences – 99 (58.2 %); Doctors of sciences – 48 (28.2 %), which allows to analyze an academic competitiveness of different categories of university teachers.

According to the purpose of research work, they performed the grouping of sampling according to 10 key indicators of the research work among respondents. The presence of given characteristics was estimated by respondents depending on the weight of indicators (minimum threshold – 0 points, maximum – 54 points), which made it possible to distinguish three research groups:

1. the teachers with a high individual rating (more than 40 points) – 27 people, where the average score makes 42;

2. the teachers with an average individual rating (from 20 to 39 points) – 78 people, with an average score of 30;

3. the teachers with a low individual rating (less than 20 points) – 65 people, where the average score makes 16.

The gender composition of respondents from different groups is relatively identical and does not have a special research significance for our work. The findings that female researchers have, on average, fewer publications than their male counterparts during the course of their career (Keuntae Kim, Jong-Kil Kim, 2016), the dominance of women among scientists holding the leading ratings (Nina-Sophie Fritsch, 2016) were not confirmed in our sample.

In its turn, the age structure of the research groups has significant differences: in the first group with high indicators the dominant proportion of respondents is in the age interval of 30–36 years; In the second group – 35–44 years; The third group includes the respondents of different age: from 22 to 70 years old with the concentration at the age poles of 22–25 years and 58–70 years. The qualifications of the respondents in research groups are subject to the general logic of the age composition. So the respondents with the candidate of sciences degree prevail the first group, the representation of respondents without a degree and doctors of sciences is insignificant; there is a decrease in the number of respondents with a Ph.D. within the third group, while the proportion of teachers without a degree and the doctors of sciences grows.

A questionnaire survey was used as the part of the study toolkit. the questionnaire included three key blocks: the assessment of general tendencies in respect of higher education reforming, including the intensification of the research work among teachers and the evaluation of their

activities on the basis of scientific and metric indicators; the assessment of personnel policy at universities: the motivational aspect, the development of rating and the nature of competition; the correlative relationships of higher education research potential development.

The group of authors also used the general scientific methods of research in a complex manner; research activities were applied with the reliance on comparative methods, comparative analysis and system analysis. The results of the study were analyzed by the means of confirmation factorial analysis of competitive advantage development process among various categories of pedagogical staff at universities; the analysis performance concerning the dependence of academic competition on a rating race nature among university teachers.

3. Results and discussion

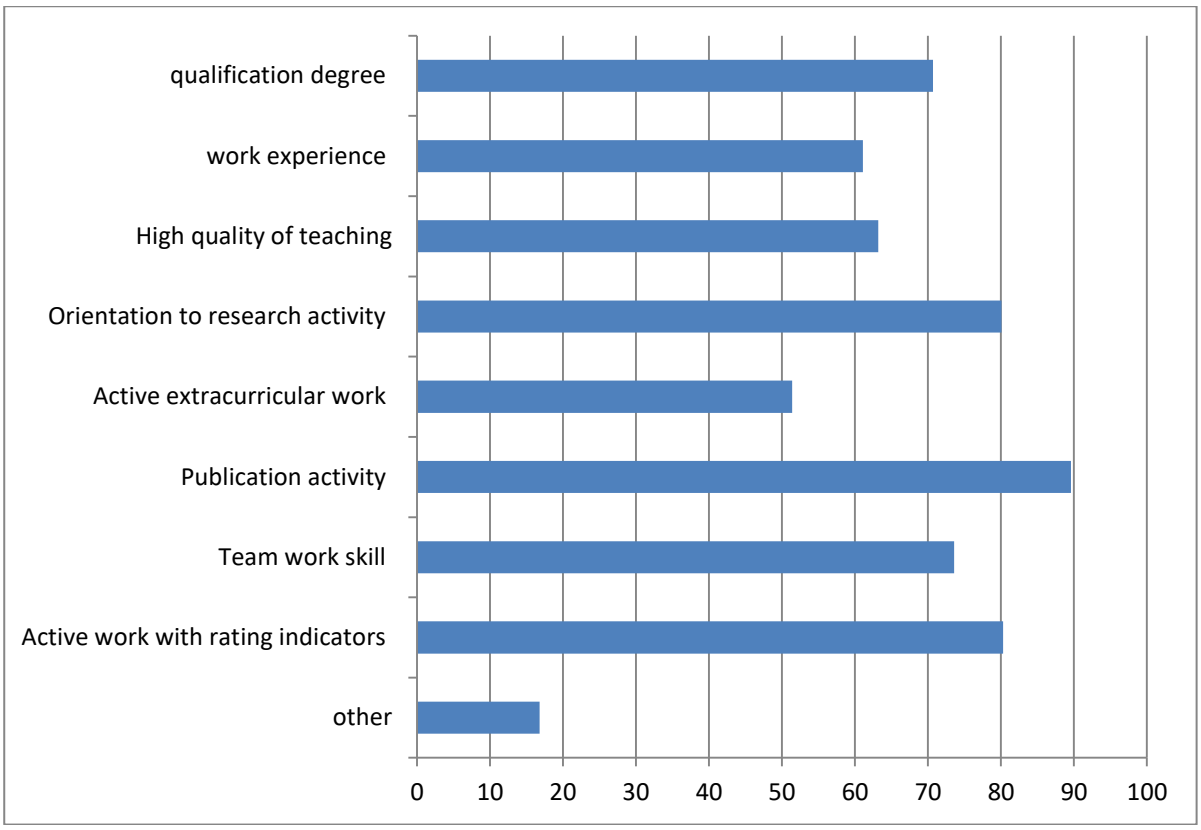

Diagram 1. Components of a university teacher competitiveness development.

According to research results, recently dominating characteristics of a competitive university teacher – the presence of a degree (qualification level) and the period of scientific and pedagogical activity – are not determining factors anymore within modern conditions of requirements review for higher education. In the opinion of respondent majority, the shift of the teacher's labor vector from pedagogical activity to the increase of the research component weight makes the teacher's qualification dependent on the indicators of his publication activity and on purposeful work with an individual rating which is also important. In the opinion to most respondents from the research group with a low individual rating, the current trends of the world scientific space development do not allow us to consider an academic degree of a teacher in isolation from the dynamics of its scientometric indicators. Traditional characteristics of a competitive teacher in the past, such as high quality of teaching, active extra-curricular activities, etc. give way gradually to new ones. This trend is especially brightly illustrated by the example of teachers with a high individual rating.

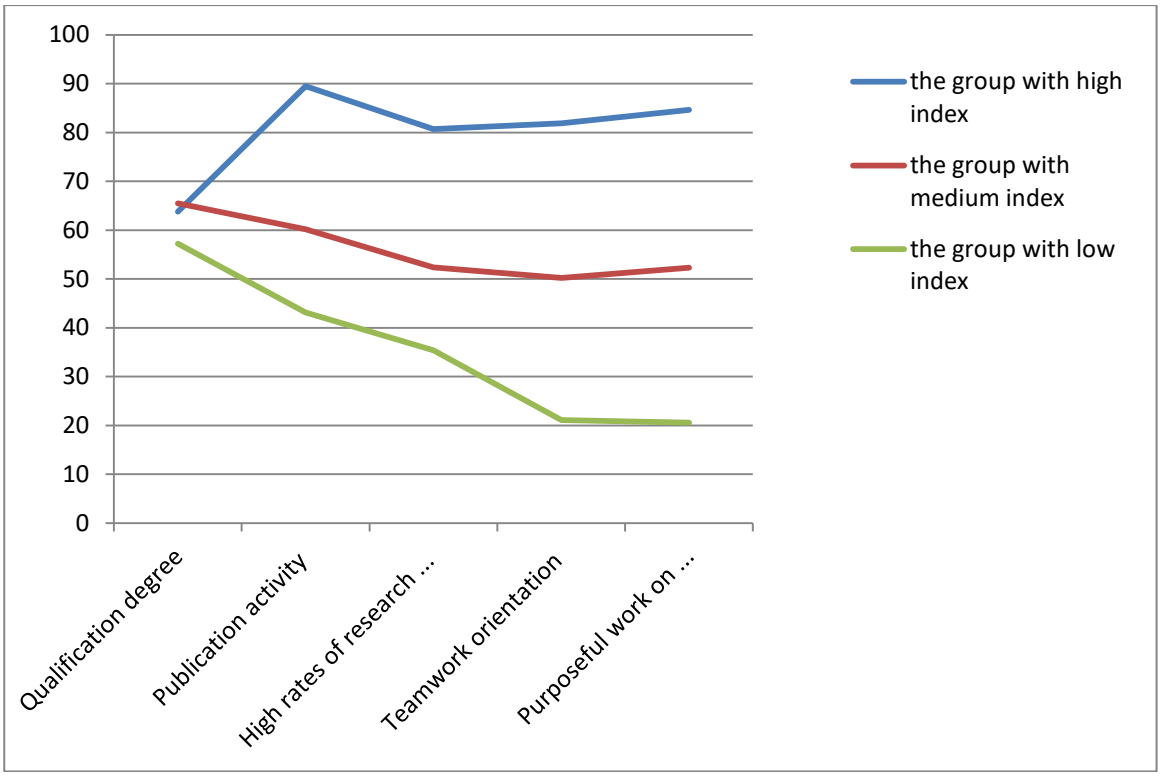

Diagram 2. Development of competitive advantages among various categories of higher education pedagogical staff

Taking the key characteristics of a competitive high school teacher as the basis, we studied their representation in different research groups. First of all, a relatively identical qualification level of respondents was set with different rating indicators. This provision allows us to conclude that academic competitiveness is conditioned by the interest and the ability of a university teacher to maintain the active rates of their research activities.

In the course of the research they established that teachers with high indicators have the prevalence of publication activity over the pace of their research activity. This provision confirms the existence of imitation production practice and replication of knowledge in Russian higher school. Moreover, a part of teacher publications within this research group does not have a scientific significance. There are low quality research works despite the striving to meet high requirements.

According to the obtained data, the achievement of high rating indicators among university teachers contributes to the development of stable organizational ties among them. The study showed that the respondents of the first group are more involved in teamwork, are distinguished by a high intensity of communication, both in their team and in external academic ties ($p<0,01$). This state allows them to establish productive contacts with foreign colleagues, as well as to ensure their nominal participation in publications and in research projects of "friendly" colleagues. However, the teachers who are more inclined to research work, look more adapted to academic life, they assess the conditions of work at universities and science in general more positively, and also behave more actively, for example, they are involved in the competitions for state grants more often. The conclusions drawn broaden the provisions adopted today, explaining the reasons of productivity increase among university teachers (Kyvik, Aksnes, 2015).

The respondents from the group with an average rating are significantly behind in all indicators, the results are statistically significant ($p < 0,01$). Perhaps this is due to an ambivalent professional identification of respondents and, thus, due to the fragmented attempts to combine teaching and research activities. Interviewed teachers are focused on the stabilization of their work activities. As a rule, they do not have a high level of conflict and ambition for career path development, and the entry into working groups is seen by them as a means to minimize their time and resource costs during publishing activity. The respondents of this group pay less attention to

the purposeful work on their academic rating, the main emphasis is on the maintaining of their competitiveness level that will ensure a stable position at a "native" university for them.

On the basis of the obtained data, we identified common features typical of university teachers with low rating indicators:

- they are not included in the context of a group work, including the absence of stable organizational ties, they are not initiative;
- they are not able to maintain high rates of scientific research activity due to lower adaptive capacity, high demands on the quality of their pedagogical and scientific activity;
- they are rather negative about how their work organization at a university: they are dissatisfied with the academic reputation of their department, their workload and income more often than others and are more inclined to think that scientific work does not contribute to teaching quality improvement and that these two types of activity are difficult to combine;
- they are focused on pedagogical work and are less subject to the stimulating influence of management.

This conclusion allows us to take a fresh look at the results of the study concerning the relationship between behavior and the productivity of academic work among teachers (Marek Kwiek, 2015).

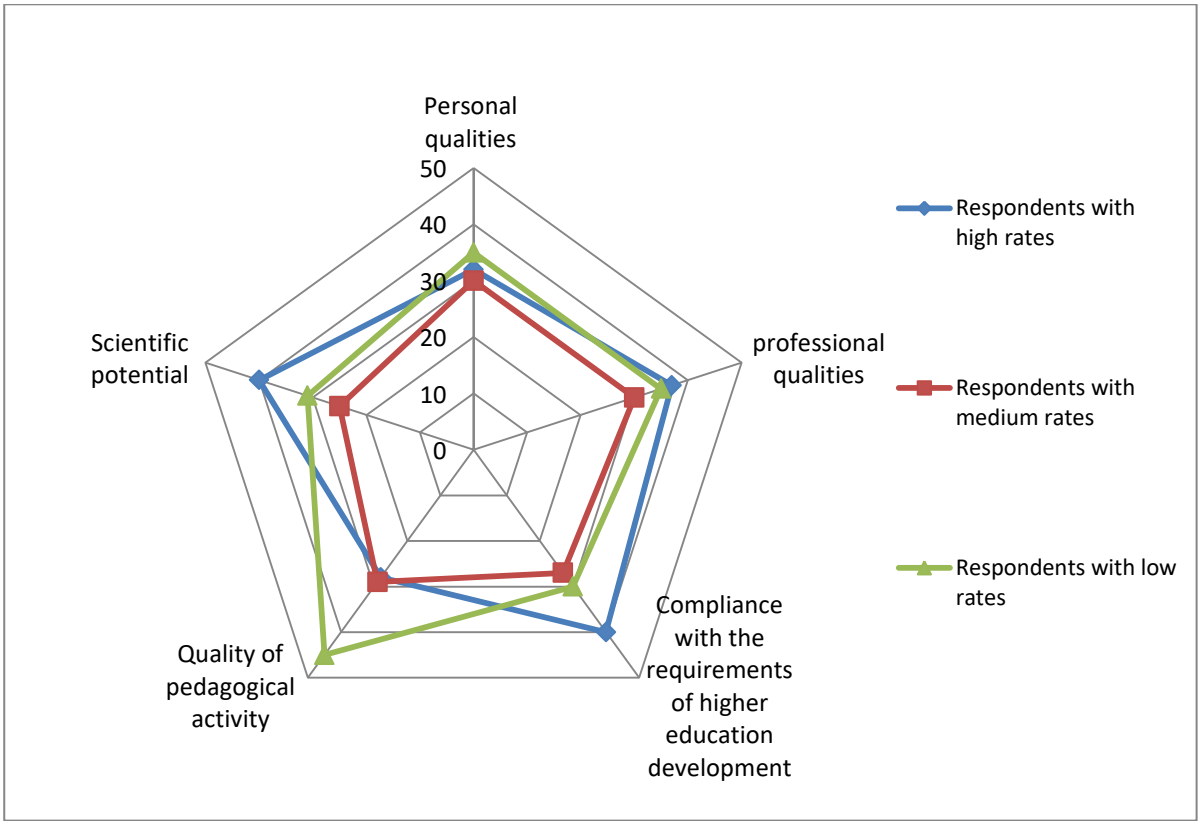

Diagram 3. Self-diagnostics of competitive advantages among various categories of pedagogical staff

The obtained data illustrate a fairly objective level of respondents' self-esteem with high and average indicators of their competitive positions in new conditions of higher education development. It is noteworthy that the feeling of satisfaction and professional interest arises not because of classroom work (the work with students) quality, but on the achievement of planned scientometric indicators, their high publication activity, etc. They noted that the preparation of publications for Scopus and Web of Science expands their professional horizons, makes them seek and find relevant research topics and establish productive contacts with foreign colleagues. It was found that the orientation of teachers to maintain high rates of research and to increase their scientific potential as the promising areas of entering the world of scientific community, reduce the quality of their teaching activities ($p < 0,01$).

The respondents with low indicators usually have a distorted idea of their academic importance. The provision of a priority value to the pedagogical component is seen by them as the only important indicator of evaluation, which makes such teachers more qualified specialists in their opinion than the teachers with certain value in research circles.

Table 1. Evaluation of management motivational policy for higher school educational organization by the teachers with different levels of individual rating (the share of teachers with a positive assessment, the motivational component, in people)

Research groups	**Evaluation parameters**		
	Stimulation system **(x^2 = 31,587, p<0,01)**	Ability for professional level increase **(x^2 = 26,424, p<0,01)**	Workability stability **(x^2 = 10,638, p<0,01)**
Teachers with high indicators	24	23	15
Teachers with average indicators	57	48	30
Teachers with low indicators	23	20	14

Russian universities develop the systems of payments for the achievement of certain indicators by teachers in order to increase the share of Russian scientific representation in the world scientific space. Therefore, a stable positive acceptance of their scientific and research activity by the teachers with high individual rating of stimulation systems is quite expected (p<0,01). It is significant that incentive payments are considered for the category of respondents with average rating positions as a significant increase in their material security. However, a sufficiently low initiative and an inactive communication position do not allow them to use all advantages of a supplementary system. The third research group is characterized by the emergence of cognitive dissonance between the identification of oneself as a teacher and the requirements of the current evaluation system concerning the work of professors and teachers according to scientific activity results. So almost the third part of the surveyed teachers with a low individual rating note the shortcomings of the most quantitative approach to their work evaluation. In the opinion of this category of respondents, the qualitative content of a teacher's scientific research activity is lost during the pursuit for high scientometric indicators. The obtained data correlate with the conclusions of other scientists making the assumptions about the rethinking concerning the fundamentals of academic performance management towards the dominance recognition of a scientific work intrinsic motivational nature (John Kenny, 2016).

As a negative point, one can note the fact that every second interrogated, regardless of his individual rating, has no confidence in the stability of the established system of additional payments, its invariability in the direction of indicator increase as they reach them. This circumstance stipulates the division of all teachers into two conditional groups: the representatives of the first one are characterized by the desire to retain advanced positions, an increased responsibility for the quality and the results of their work, the satisfaction from the ability to set complex goals and achieve them. At the same time, the teachers of the second group have an emotional decline, passivity in the processes of personal and career growth provision, and somatic disorders are observed. Artificial barriers, in the form of quick publishing ability absence is a significant psychological obstacle for them.

We believe that the revealed differences in the respondents' psycho-emotional reactions are related both to the personal psychological characteristics of the respondents and to their chosen styles of coping with stress under the conditions of instability. A more active personal and professional position of respondents with a high individual rating allows them to adapt to changes better in the scientific and educational space of higher education despite a significant level of stress. In their turn, the teachers with a low individual rating, who usually have either little experience and the lack of stable organizational ties, or considerable experience at the absence of

physical capabilities and psychological flexibility, are unable to adapt to new conditions fully. This fact slows down the pace of their research activities significantly. This leads to the emergence of a general dissatisfaction with professional activities and their "more successful" environment.

The teachers with high performance regard the motivational component of personnel policy as an opportunity to improve their professional level. Respondents noted the emergence of emotional recovery, satisfaction and interest due to the achievement of planned scientometric indicators, their high publication activity. The teachers of this research group pay a special attention to the growth of their intellectual and social activity, the emergence of new professional interests. In the opinion of the respondents, the mastering of a general algorithm for scientific data submitting and the selection of relevant topics consistent with the editorial policy of scientific journal foreign editions, required the work on themselves and a significant revision of previous ideas about the quality of scientific publications. The obtained data supplement the existing analysis of motivating and inhibitory perception factors by a university teacher in respect of his professional development (McMillan et al., 2016).

4. Discussion summary

The change academic work structure and priorities from the educational dominant to the research one changed the very idea about university teacher competitiveness, becoming the cause of the rating fever appearance. Nowadays, an effective contract providing the implementation of the current and final monitoring of employee achievements in accordance with his rating positions is an important tool of the new personnel policy at universities. The main object of monitoring during the conclusion of an effective contract is the indicator of a teacher's publication activity.

After the academic competition analysis, a conditional division of university teachers into groups was established, according to their adaptive abilities, which provide the opportunity to maintain high rates of scientific research for teachers, and thus meet the modern requirements of the scientific community. The attempts of teachers (those who modified their professional activities successfully) to achieve high rating positions are accompanied, on the one hand, by the strengthening of their communicative and social mobility and provokes the emergence of a tough competition for jobs on the other. Striving to reach leading positions, such teachers focus not so much on their professional level increase as on their quantitative indicator increase, often imitating their research and publication activity, without taking into account the social value of its results.

At the same time, the teachers with low ratings, who are characterized by the exclusion from a group work context, low initiative, inability to maintain high rates of research activity, are considered to be uncompetitive as a rule, as they are not in demand within new conditions. The administration of higher education institutions during an effective contract conclusion, seeks to minimize the proportion of such teachers, which causes the leakage of pedagogical personnel oriented toward quality training of students according to research results. The teachers with a low rating considering higher requirements to the quality of their pedagogical and scientific activity have low quantitative indicators with a high enough quality component, which is the reflection of the rating race dual effect actually.

With all the advantages of the rating system, it has its own compensating disadvantage, namely an ambiguous impact on the quality of pedagogical personnel. The factors that ensure the development of a new generation of competitive university teachers in developed countries are closely interrelated with personal and professional attitudes of teachers in Russian conditions. The strategic attitude towards the representation of Russian scientists increase worldwide with the strengthening of the requirements from university administration and the instability of a workplace creates the prerequisites for the emergence of development imitation and fragmentary manifestations of teachers' pseudo activity. Using the Russian example academic competition highlights the problem of student exclusion from the focus of high school attention and the concentration of efforts on research potential increase among workers. In fact, this situation is problematic due to the fact that the knowledge generated by academics is not integrated into the educational process and is not used to develop necessary professional competencies among students. In the pursuit of rating, many teachers forget about the need to prepare students demanded by global economy.

5. Conclusion

In the course of the performed study, the hypothesis was confirmed, according to which, the qualification of teachers in new conditions of university teacher evaluation and the accompanying pedagogical experience are not the dominant characteristics of academic competitiveness development. They established the fact that the qualification level of a teacher is closely related to their publication activity and high rates of research remaining one of the leading requirements for high school employees, without which it is not able to provide teacher's competitive advantages for a long term.

According to the study results, it was revealed that the motivational component of personnel policy is an obligatory, but an insufficient factor to ensure the professional growth of scientific and pedagogical personnel. This is related to the fact that regardless of his individual rating every second respondent lacks confidence in the stability of the established system of additional payments, its invariability towards indicator increase as they reach them. Besides, the category of teachers was identified, which is characterized by the emergence of cognitive dissonance between the identification of oneself as a teacher and the requirements of the current system for work evaluation of teachers and professors according to the results of scientific activity. At that, the teachers of this group have an emotional decline, passivity in the processes of personal and career growth provision, and the appearance of somatic disorders is observed.

According to the results of the study, the third hypothesis received a partial confirmation. In particular, it was established that the aspiration of high school teachers to high rating positions provokes the emergence of an acute competitive struggle. According to the teachers' opinion, the rating race provokes the emergence of the following feelings: rivalry, envy of more successful colleagues, irritability and injustice. At the same time, the assumption that the orientation of teachers on high rating indicators ensures the improvement of their research work quality was not confirmed in the course of our study. Moreover, an inverse relationship was established according to which the resulting rating fever provokes the appearance of development imitation effect. The teachers with high rating are characterized by artificial increase of their publication activity through an active co-authorship, the repeated publication of their works in their insignificant processing, and the publishing of falsified studies and data of no scientific value. There is an assumption according to which the orientation toward a quantitative approach to the evaluation of teachers in conjunction with an active academic competition will help to reduce the potential of higher education scientific and educational space.

Besides, the dependence of a teacher's rating on his research and development activities is revealed, when the work with students and the quality of classroom activities are excluded from the focus of academic competitiveness development. This dependence provokes the development of teachers who are aimed on pedagogical and not research activity that does not allow them to compete and rely on long-term labor guarantees. At that this category of teachers is characterized by higher requirements to the quality of their publications and other product of their intellectual activity, which reduces the quantitative indicators of their publication activity. That is why the motivation policy adopted at Russian universities for this category of teachers is not an effective one, and their systematic leakage provokes the decline of university teacher potential due to the inability of a high rating maintaining. Thus, according to the results of the study, the authors made the following conclusion that was not included initially in the number of research hypotheses, namely: the presence of low rating teachers among university teachers is not an indicator of their low competitiveness.

Each of these arguments points to the shortcomings of the quantitative approach to the development of the rating position among teachers and universities in general. This is due to the fact that there is no sufficiently high level of scientific and research potential among university teachers in Russia due to recently adopted division into pedagogical and research activities. The attempts of a quick transition into world requirements provoke the emergence of academic competition, which will lead to an outflow of those teachers who are interested in qualified training of students, but not in work with their ratings. In fact, the rating fever entails a dual effect, since the factors of a new generation development of competitive high school teachers will help to increase or decrease the quality of teaching staff depending on their adaptive features.

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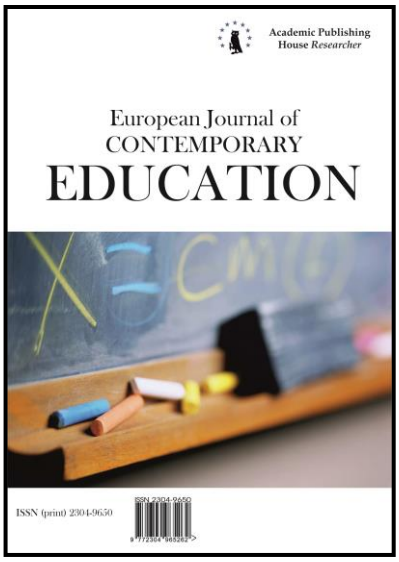

Online Case-based Learning Design for Facilitating Classroom Teachers' Development of Technological, Pedagogical, and Content Knowledge

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Abstract

The aim of this study is to investigate whether, and if so how, online case-based learning influence pre-service classroom teachers' self-confidence on technological pedagogical content knowledge (TPACK). To achieve the goal, a control group pretest–posttest quasi experimental design was used. Participants of the study consisted of 160 pre-service classroom teachers studying in a public university. There were two classes which were randomly assigned to experimental (n=78) and control (n=82) groups. The eight video cases were developed by the researchers based on an analysis of relevant learning content and real stories. During 10 weeks only pre-service teachers in the treatment group were participated in an online case-based learning environment and investigate video cases. An "Academic Motivation Scale" consisting of 20 Likert-type questions was used to measure pre-service teachers' academic motivation. The data were analyzed using two-way ANOVA statistical analysis with SPSS 20 packet program. The results showed that using online case-method significantly improved TCK and TK subdomains. However, pre-service classroom teachers' self-confidence on technological pedagogical content knowledge did not improve significantly.

Keywords: pedagogical issues, teaching/learning strategies, Technologic pedagogic, case-based learning, teacher education.

1. Introduction

Modern education system requires the use of current technologies and methods which provide students with activities that allow them to play active role in learning. In order to facilitate teaching and learning, the use of instructional tools and technologies began to play an important role (Clements, 2002). Surely, innovations and changes in social disciplines bring about complete

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integration between novelty and society. For the last twenty years, technology integration in schools has gained a big emphasis in the whole world (Chen, & Jang, 2014). Teachers are expected to use educational technologies and methods in lessons more effectively. However many studies show that policy makers and governments have been investing in instructional technologies, including computers, mobile devices and Interactive boards, but both pre-service and in-service teachers are not sufficiently prepared to integrate these technologies into their classrooms (Agyei, Voogt, 2012).

Even recently graduated teacher who are digital natives may not have a clear idea of how to integrate technology into teaching and learning and use current methods effectively (Uygun, 2013). ICT have been used as a tool that provide teachers with saving time and expanding classes rather than provide to transfer information in a most authentic way (McCormick, Scrimshaw, 2001). The expected teachers' perspective on technology integration differ depending on culture and context (Correa et al., 2008). Usually the important skill which is expected from teachers is that not only the use of current technologies and the knowledge, but also to integrate them into the given context (Pamuk, 2012). In this regard, some methods and approaches were developed in the field of teacher education.

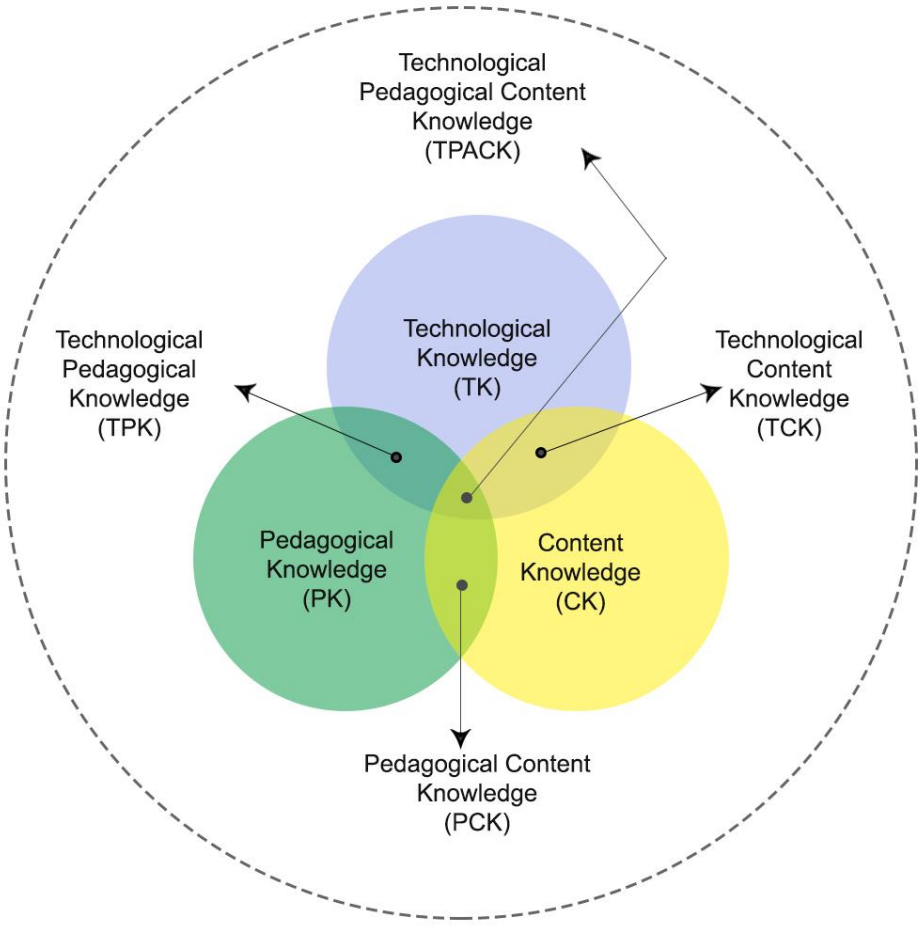

Fig. 1.1 Technological Pedagogical Content Knowledge

One of them is technological pedagogical content knowledge (TPACK) approach. TPACK emphasizes the integration of teachers' pedagogical content knowledge (PCK) and technology knowledge (TK). PCK was first mentioned by Shulman (1986) who focused the integration of content and pedagogic knowledge in teacher certification programs. In the following two decades, technological improvement in the field of education has been increased surprisingly. Thus, technology knowledge added next to the content and pedagogic knowledge. TPACK has been defined as complex, innovative, contextual and integrative knowledge of pedagogy, content and technology (Koehler, Mishra, 2009; Harris et al., 2010). Koehler and Mishra (2009) described seven subscales under the TPACK framework which are content knowledge (CK), pedagogical

knowledge (PK), pedagogical content knowledge (PCK), technology knowledge (TK), technological content knowledge (TCK), technological pedagogical knowledge (TPK), and technological pedagogical content knowledge (TPACK). The relationships of these subscales can be seen in Figure 1.1. There are several studies conducted to investigate the relationship between the subscales. For instance, in their study, Chai and his colleagues (2010) indicated that pedagogical knowledge domain have the largest effect on pre-service teachers' TPACK level. On the other hand, teacher educators have utilized different practices to improve technological pedagogical content knowledge. Some of these practices were summarized in Table 1.1.

Table 1.1 Practice for improvement of TPACK

Practice	**Stage(s)**
Introduction of TPACK	Workshop
Demonstration of example lessons and discussion	Workshop/ discussion
Micro-teaching	Workshop/implementation
Developed lesson plan and materials	Workshop/design/implementation

Case-based learning method is one of the current approaches utilized in different subject areas of education to fill the gap between theory and practice. Case-based method can be helpful development of teachers' TPACK because this method offers learners real life experience by involving real life situations. In this way, learners enable to apply previously learned concepts and principles (Sönmez, 2004). Case-based method provides students with the opportunity of participatory education by facilitating active and reflective learning (Tomey, 2003). However, there are few studies that explore the effectiveness of current practices on TPACK domains. In a recent study, Agyei and Voogt (2012) created design groups consisting of pre-service teachers to develop technology supported instructions. Jang (2008) indicated that teachers become more successful when they work together to apply new technologies. More comprehensive studies were needed to investigate how case-based learning and technological practices affect teachers' technological pedagogical content knowledge.

1.2 Purposes of the study

The aim of this study is to investigate effects of usage of online case-based learning on pre-service classroom teachers' perceived technological knowledge, pedagogical knowledge (TPACK). This study compared the perceived TPACK of pre-service classroom teachers who were participated in online case-based learning activities taking classroom management course with the pre-service teachers in control group who were not participated the online activities but take the classroom management course. In this regard, the following research questions were addressed:

- Is there a significant difference between the TPACK scores of pre-service teachers who were participated in online case-based learning activities and who did not?
- Is there a significant difference between female and male pre-service teachers' perceived TPACK scores taught by using online case-based learning method in classroom management course?

2. Method

The aim of this study is to determine whether pre-service teachers who have participated online case-based learning activities taking classroom management course show a greater performance on TPACK scores than the pre-service teachers in control group who do not participate in the online activities but take the same classroom management course. The methodology of the study was quasi-experimental design with pretest-posttest and control

group. Experimental design enables researchers to observe effects of systematic manipulations on one or more variables (Fraenkel and Wallen, 2006). Therefore this method was appropriate for the study.

2.2 Learning environment

The study was conducted with pre-service classroom teachers who were enrolled in a mandatory course namely "Classroom Management". The aim of the course is to improve pre-service teachers' pedagogic knowledge. They were taking classes in four groups. Two groups were randomly selected as experimental and two groups were control group. The same teacher educator was conducted lesson in both group using same methods. Pre-service teachers in experimental group were also participated in online case-based learning activities. These activities were conducted on a webpage (http://ornekolay.amasya.edu.tr/). Pre-service teachers used this webpage by logging in with their user name and password. For 10 weeks, they watched 10 video-cases and investigated them using eight-step problem solving approach (Saltan, Özden, 2010). The teacher educator also had an account to monitor and facilitate pre-service teachers while they were investigating the cases. A screenshot of the web page is seen below in Figure 2.1.

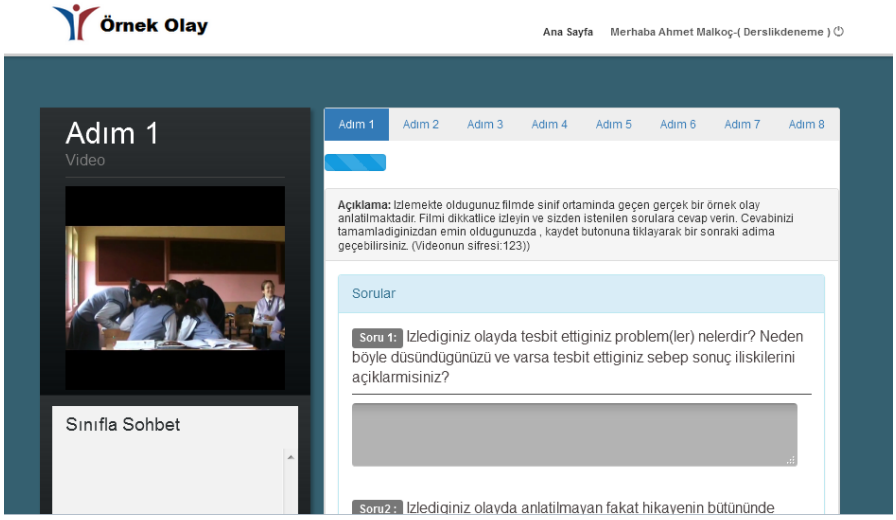

Figure 2.1 A view from online learning environment

2.3 Participants

The participants of the study consisted of 160 pre-service classroom teachers who were taking the classroom management course. There were two classes which were randomly assigned to experimental (n=78) and control (n=82) groups. In the experimental group there were 47 females and 31 males. The control group consisted of 48 females and 34 males. The participant of the study was shown in the Table 2.1 below.

Table 2.1 Distribution of the participants for experimental and comparison group

Group	Gender		Total
	Male	Female	
Experimental	31	47	78
Control	34	48	82
Total	65	95	160

2.4 Data Collection and Instruments

Data was collected through "Technological, Pedagogical, and Content Knowledge Self-Confidence" scale developed by Graham, Burgoyne, Cantrell, Smith, and Harris (2009). Timur and Taşar (2011) translated the survey into Turkish and Cronbach Alpha was calculated as .92. Technological, Pedagogical, and Content Knowledge Self-Confidence scale consists of 31 5-point

Likert type questions under TK, TCK, TPK, and TPACK factors. The Table 2.2 shows data collection process of the study.

Table 2.2 Data collection Process

Group	Before Treatment	Treatment	After Treatment
Experimental	• Technological, Pedagogical, and Content Knowledge (TPACK)	• Instruction with additional activities based on online-case based learning	• Technological, Pedagogical, and Content Knowledge (TPACK)
Control	• Technological, Pedagogical, and Content Knowledge (TPACK)	• Instruction without the activities	• Technological, Pedagogical, and Content Knowledge (TPACK)

2.5 Data Analysis

For this study data includes one independent variable and eight dependent variables, which are pre and post test scores of TPACK including sub-scales of technological, pedagogical and content knowledge. Firstly, pre and post test scores in technology, pedagogy, and content knowledge were taken directly from TPACK's scores. And then, total scores of each sub-scale of the instrument for pre and post tests were calculated.

Data gained from TPACK scale were analyzed through descriptive and inferential statistics for each sub scale of the instruments by using the SPSS statistical package. The level of significance for the statistical tests was set at.05. The study investigated two research questions aiming to explore the difference between experimental and control group participants' scores in TPACK scale. The questions were analyzed by examining the sub-questions in the main questions. Table 2.3 shows the main questions and sub questions, and also applied statistical tests for them.

Table 2.3 Research Questions

Research question 1. Is there a significant difference between the TPACK scores of participants who take case-based learning activities and who do not take in classroom management course?	
Sub-questions	**Applied Statistical Test**
• Is there a significant difference between experimental and control group students' pre-test scores of TPACK?	• Independent samples t-test
• Is there a significant difference between pre and post- test' scores of both groups?	• Paired samples t-test
Research Question 2. Is there a significant difference between female and male pre-service teachers' perceived TPACK taught by using online case-based learning method in classroom management course?	
Sub-questions	**Applied Statistical Test**
• Is there a significant difference between female and male pre-service teachers' perceived TPACK taught by using online case-based learning method in classroom management course?	• One-way ANOVA

3. Results

Before conducting statistical analysis, assumptions of t-test were checked. There are three most frequently cited assumptions, which are outliers, normality, and homogeneity of variance. First, outlier analysis was performed by using explore procedure in SPSS to remove extreme scores

from the data, and no significant outliers was found. Second assumption is to check dependent variables –pre and post test scores- is normally distributed or not. One of the ways for checking normality is to apply Kolmogorov-Smirnov test. Test result showed that distribution of dependent variables is not significantly difference than normal distribution (p>.05). Lastly, Levene's test was used to check homogeneity of variances and the test indicated non-significant result.

3.2 Is there a significant difference between experimental and control group students' pre-test scores of TPACK?

Independent sample t-test was performed to compare TPACK mean score of pre-service teachers in experimental with pre-service teachers in control group. As shown in table 2.4 below, scores of experimental and control group students on pre-test were 4.05 and 4.03 respectively. Independent sample t-test result showed no statistical significant difference at a significance level of .05 (t(158)= .26, p> .05). Based on this result, there was not a significant difference between groups in pretest TPACK scores, so it can be said that before conducting the study two groups had same level in terms of TPACK scores.

Table 2.4 The Results of Independent Samples t-test for Pre- Test Scores

Group	N	Mean	SD	df	t	p
Experimental	78	4.05	.68	158	.26	.79
Control	82	4.03	.57			

In addition, the sub-factors of TPACK, technological pedagogical content knowledge (TPCK), technological pedagogical knowledge (TPK), technological content knowledge (TCK), technological knowledge (TK), were also analyzed to see mean difference among groups on pre test scores and no statistical significance was found for each factor (p>.05).

3.3 Is there a significant difference between pre and post- test' scores of both groups?

Second sub-question was formulated to test whether there is a significant difference between pre and post test scores of experimental group and control group students. Paired sample t-test was used. For experimental group, t-test result showed that means of the students post test scores ($\bar{X}$=4.08) was not significantly higher than the mean of their pre test scores ($\bar{X}$=4.05) (t(77)=.76, p>.05). On the other hand, in TCK and TK sub-domains of TPACK there were statistical significant difference between pre and post test scores (t(77)=2.35, p<.05 and (t(77)=3.6, p<.05). In table 2.5 below, TPACK scores of experimental group's pre and post test with sub-factors are shown. On the other hand, in control group, for the main and sub domains of TPACK, no statistical significant difference was found between pre and post test scores.

Table 2.5 The Results for Paired Samples t-test for Experimental Group's TPACK Test Scores including sub factors

TPACK's test scores	Mean		sd		df	t	p
	pre.	post	pre	post			
TPACK	4.05	4.08	.68	.63	77	-.30	.76
TPCK	3.85	3.89	.64	.57	77	-.76	.44
TPK	3.89	4.00	.69	.61	77	-1.63	.10
TCK	3.84	3.51	1.08	1.09	77	2.35	.02*
TK	4.64	4.89	.95	.84	77	3.6	.00*

3.4 Is there a significant difference between female and male pre-service teachers' perceived TPACK taught by using online case-based learning method in classroom management course?

This question was formulated to see the gender difference in experimental group. One-way Anova was applied. Table 2.5 below showed that there was no significant difference between male and female students involved in online case-based learning (p>0.05).

Table 2.5 The Results of One-way ANOVA of experimental group on gender difference

Gender	Mean	SD	df	f	p
Male	4.25	.65	77	1.33	.25
Female	3.99	.57			

4. Discussion and conclusion

The purpose of the study was to investigate the effects of online case-based learning on pre-service classroom teachers' perceived technological knowledge, and pedagogical knowledge. The study also compared the perceived TPACK of pre-service classroom teachers who were participated in online case-based learning activities and with those who did not. For experimental group, t-test results showed that post test scores was not significantly higher than the pre test scores. On the other hand, in two sub-domains of TPACK scores, which are TCK and TK, there was a statistical significant difference between pre and post test scores. This result indicated that online case-based activities improved participants' technological knowledge and technological content knowledge significantly. Several studies found that just focusing on the technological knowledge, content knowledge and pedagogical knowledge were necessary up to a certain extent for TPACK development but not enough (Timur, 2011). Lack of experience in understanding of different teaching methods and use of them were important issues in developing pre-service teachers' TPACK (Pamuk, 2012).

On the other hand, in control group, a significant difference in technological pedagogical content knowledge and TPACK sub-domains between pre and post test scores was not found. The result showed that the classroom management course, one of the courses in teacher preparation program, did not significantly improved pre-service teachers' TPACK. Courses in teacher preparation programs which are teaching by using traditional methods may not be enough to improve pre-service teachers' technological pedagogical content knowledge. Fishman and Davis (2006) similarly indicated that improvement of TPACK takes long time and pre-service teachers need to move beyond to teacher preparation programs by having experience in teaching profession to build TPACK. In this respect, teacher preparation programs might need continuous revisions to educate teachers depending on the necessity of the time. Surely new researches will follow these revisions to understand the effect of contemporary methods and teaching strategies.

The analysis showed that although post-test TPACK scores of experimental group students was higher than the control groups students' TPACK scores, there was no statistical significant difference in post-test TPACK scores between groups. This showed that although involvement in online cased-based learning activities improve pre-service teachers' TPACK, it is not statistically significant. The TPACK literature indicated that generation and improvement of new sub-domains like technological content knowledge takes long time and much experience. In this study, it was aimed to provide this experience in an online environment by utilizing case-based learning strategies. However, it seems that one semester was not enough to significantly improve students' TPACK level. Case-based activities should continue one school year or more. Further researches may collect data using intermittent measurement to explore the chance in TPACK scores. By this way, it can be monitored how pre-service teachers' TPACK improve by using technology based teaching strategies. In their study, Canbazoglu-bilici, Guzey and Yamak (2016) assessed pre-service teachers' technological pedagogical content knowledge over one semester. They highlighted that teacher education programs should provide some courses to improve pre-service teachers' TPACK sub-domains.

On the other hand, it was investigated whether there is a significant difference between male and female students' TPACK scores. Analysis showed that there was no significant difference

between male and female students' TPACK who were involved in online case-based learning. In the literature, there are some findings showed that gender have an effect in computer integration. Male teachers might have more self-confidence in technology specifically about computers (Blackmore et al., 1992). Even though it was seen that men are more likely than women regarding computer and ICT technologies, there have been conflicting findings (Teo, 2008; Panteli et al., 1999). Markauskaite (2006) found significant differences between males' and females' ICT abilities and situational sustainability. The findings about gender related ICT activities will be considered with further studies.

To sum up, the study showed that using case-method with technology significantly improved TCK and TK subdomains. However, pre-service classroom teachers' self-confidence on technological pedagogical content knowledge did not improve significantly. This result might be because of content of cases or application time. 10-week application time may have been inadequate. Same study may be conducted during one school year. On the other hand further studies should consider using case-method with various technologies.

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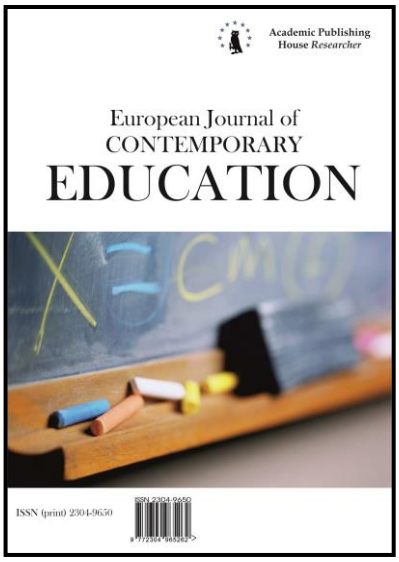

The Role of Irish Language Teaching: Cultural Identity Formation or Language Revitalization?

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Abstract

The focal point of the article is Irish language teaching in the Republic of Ireland. Firstly, we deal with the most significant documents where the status of the Irish language is being defined. In this respect, for the purposes of analysis, we have chosen the document titled *20 Year Strategy for the Irish language* which plays a crucial role in preservation and further cultivation of the Irish language given the fact that the Irish language is still regarded as an important element of Irish national and cultural identity. New didactic methods used in Irish language teaching are also included in the contribution. Specifically, we focused on CLIL methods used in Irish language classes. Last but not least, we also present new challenges that Irish language teachers must face in the 21st century as well as on the crucial issues concerning Irish language revitalization and protection.

Keywords: Irish language, Irish language teaching, identity, revitalization, protection.

1. Introduction

Firstly, it is inevitable to mention several crucial facts closely connected with the history of the Irish language. Secondly, it is of utmost importance to focus on the innovative methods used in Irish language teaching in Irish schools and also to deal with potential challenges to education process of this compulsory subject. We suppose that the employment of effective didactic methods during Irish language classes can be beneficial in the field of language revitalization and protection, supporting language sustainability and vitality. In the last part of our paper we will stress the significance of not only Irish language teaching but also the very existence of Irish language and current initiatives and programs aimed at its preservation and cultivation. The paper´s aim will be

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realized through adopting the hypothesis that Irish language is not just solely a teaching subject, but it is deemed as one of the substantial signs of national and cultural identity of the Irish nation.

As it is generally known, the Irish language* has been declared as one of the official languages of the European Union, which happened precisely in 2007. According to the Irish Department of Foreign Affairs, since granting the Irish language the same status as is being enjoyed by other Member States´ languages, new arrangements must have been also accepted following the changed status of the Irish language which had been a treaty language before (since Ireland joined the EEC in 1973, the same year as UK did). These mentioned new arrangements for Irish means:

- Knowledge of the Irish language is taken into account for the purposes of recruitment to the EU institutions
- EU regulations adopted jointly by the Council and the European Parliament will be translated into Irish
- Interpretation from Irish is also provided to meet needs at Ministerial meetings and at the European Parliament
- The nameplates in front of Irish Ministers and delegations now say "Eire Ireland" to reflect the new status of Irish in the EU

In short, the Irish language acquired new status that inhabitants of the Republic of Ireland have been striving for long decades. On the one hand, it has brought many positives if we take into consideration increase of national awareness and strengthening of national and cultural identity, while on the other hand, it also carries certain challenges that the state and the people must cope with. Therefore, the aim of our article is to deal with Irish language learning and teaching whereas education and educational process is one of the areas which have been affected by these latest changes. Education sector has been simultaneously facing new challenges bringing into question old methods used in teaching and introducing new, innovative ones.

2. Materials and methods

The decision to use any particular language is viewed as the democratic choice of every individual, simultaneously being an expression of that individual's identity. Language in this context is thus viewed as the very condition of an individual's identity. The interrelation of language and identity can therefore be examined from different perspectives (linguistic, sociolinguistic, psychological, and historical).

The aim of this paper is to present the information gathered through the medium of field research realized in the City of Galway, within the National University of Ireland (abbreviated as NUIG), as well as outside the city, accentuating the cardinal aims and priorities of the officially adopted *20-Year Strategy for the Irish Language 2010–2030* and *The Official Languages Act*, which came into force in 2003, on the current state and position of the Irish language in the Republic of Ireland, focusing in a more detailed way on how the language positions itself within the cultural identity of the Irish. Furthermore, we focus on possible techniques for revitalizing and protecting the language for future generations taking into account the changes and challenges which the education sector faces. All the data acquired was gained, using the techniques of qualitative research, through the medium of semi-structured interviews, focus group discussions and direct and indirect observations realized during our short-term stay in the Republic of Ireland.

The field research aimed to uncover both the real state of the Irish language in the education sector today and the attitudes of people towards language revitalization and towards different issues concerning the probability of Irish language survival in the future.

Our research was initiated in Slovakia in September 2012 and finalized in the Republic of Ireland, in the city of Galway, within National University of Ireland (NUIG), from February to March 2015. Our informants´ opinions on Irish language teaching and its position within Irish cultural and national identity and in people´s everyday lives were examined and further analysed. The background of informants was diverse ranging from representatives of educational, institutional and other public bodies sector including ordinary citizens living in the Republic of Ireland. The representative sample reached the number of 100 respondents including all opinions

* According to Article 8 of the Constitution, the Irish language is the national language and the first official language in the Republic of Ireland, while the English language is considered as the second official language.

gained from interviews and focus group discussions organized within the National University of Ireland in the city of Galway and nearby areas. Detailed information about our research can be found in the published monograph called Irish Language and Identity: Revitalization and Protection, published in 2015 by the Matej Bel University in the city of Banská Bystrica, Slovakia. In the contribution we deal only with the selected aspects of Irish language revitalization, namely, through the medium of education. The topic of language revitalization is very complex and there is need to examine it in a more detailed way in the future. In this article we hope to have shown just a few aspects concerning Irish language teaching in the Republic of Ireland from the point of view of external researchers.

Research area

We believe that Irish language is an essential part of spiritual, non-material heritage of mankind. The survival of Irish language can be deemed as a key factor for retaining cultural and linguistic diversity of the world. Therefore, Irish language revitalization is important not only for Irish and European cultural identity. Still, Irish language is characterized as a symbol of Irish identity. In our point of view, Irish language is one of the key elements of Irish cultural and national identity, the loss of which would simultaneously and inevitably bring loss of some particular cultural traditions, centuries old, typical for Ireland. Such a loss could be detrimental also in terms of cultural heritage development. According to authors focusing on the current state of languages, majority of world´s languages are in danger of extinction, so there is a very high probability of their disappearance in the very near future. This alarming situation was our primary drive for exploring the topic of Irish language teaching further considering the fact that education sector can help immensely in the area of Irish language revitalization. There has been issued also a revitalization plan in the Republic of Ireland called 20-Year Strategy for the Irish Language 2010–2030, which is a very well-organized and proposed plan aimed at increasing the number of Irish language users in the horizon of twenty years. Since 2007, when the Irish language was adopted as one of the fully official languages of the EU, many changes have happened in the area of Irish language revitalization. That is why we decided to consider some aspects of the current situation of the Irish language teaching and some aspects of Irish language revitalization.

Participants

The selection of study participants was intentional having in mind reaching the most versatile representative material. Therefore, we have chosen members of academia, representatives of organizations and institutions residing in the city of Galway and nearby areas aimed at Irish language revitalization as well as on ordinary citizens and students attending various courses within university. Particularly, our research was realized in the following institutions which we consider crucial for Irish language revitalization given the fact that all of them have got a huge commitment to Irish language. Therefore, the participants of our research were selected from the below mentioned organizations since they are deemed as key subjects in the area of language protection.

Participants of our research came from different social background, including political. They were representatives of major political parties at the time of our research, namely, members of Sinn Féin and Fianna Fáil.

List of the visited institutions:

1. National University of Ireland in the city of Galway (NUIG). Within the NUIG we realized interviews with members of the Centre for Irish Studies, Arás na Gaelige (Department of Irish Language), Department of History, etc.
2. Gaillimh le Gaelige (Galway with Irish)
3. Conradh na Gaelige (Gaelic League)
4. National Irish Language Theatre (An Taibhdhearc)
5. Udarás na Gaeltachta
6. Ealain na Gaeltachta Teoranta
7. Galway City Gallery
8. Galway City Museum
9. Galway City Library

The citizens we interviewed came from different areas within the Republic of Ireland, not only from Gaeltacht areas (Moycullen, Na Forbacha, Spiddal) but also from other non-Gaeltacht, mainly English speaking areas (county Offaly – Killeigh, Tullamore, county Wicklow – Aughrim, Dublin) in order to reach different spectrum of opinions, approaches and attitudes to language protection and revitalization.

Recruitment methods

All our participants were contacted by e-mail in advance which was followed by face-to-face communication. We explained them the nature of our research, the aims and purposes of interview. They were also presented a detailed plan of interview. All of the contacted people responded and made an arrangement with us stating the time and venue of the meeting. Only in marginal cases communication was carried out by e-mail.

The people who were contacted and asked to participate in an interview or focus-group discussion consented to our invitation. No one of them refused.

Study sample

The representative sample reached the number of 100 respondents including all opinions gained from interviews and focus group discussions. Our field research was carried out, as mentioned earlier, in the city of Galway and nearby areas as well as in other non-Gaeltacht areas situated outside from the real Irish-speaking regions. Our research aimed to uncover the attitudes towards Irish language revitalization, protection and future of this, today minority language as well as its potential within education sector referring to the topic of Irish language teaching, especially to how to save the language through various innovative approaches used in education.

Detailed information about our research can be found in the published monograph called Irish Language and Identity: Revitalization and Protection, published in 2015 by the Matej Bel University in the city of Banská Bystrica, Slovakia. In the contribution we deal only with the selected aspects of Irish language revitalization, namely, through the medium of education. The topic of language revitalization is very complex and there is need to examine it in a more detailed way in the future. In this article we hope to have shown just a few aspects concerning Irish language teaching in the Republic of Ireland from the point of view of external researchers.

Method for gaining informed consent

All the participants were asked a primary question at the beginning of each interview if they consent to the interview being made. Their informed consent is part of our audio recording archives where we keep all oral informed consents from our informants.

Method of recording data

First of all, we elaborated a detailed plan for observations, interviews and focus-group discussions. All data obtained were recorded using our voice tracer (audio recording techniques). The data were subsequently transcribed following each interview, studied, coded and analysed. All the transcribed data are part of our research archives kept in the computer file (part of our research archives).

We have elaborated a detailed plan of interviews or an interview guide a few months before carrying them out. This detailed plan comprised of the proposal of observations, research questions, aims of research, list of topics discussed and asked including the initial, key and final questions presented during interviews. Just to be sure, we have also developed a list of additional final questions.

Once the data saturation was reached, we have finalized our data collection. This was when the newly obtained information started to repeat and no new findings were made.

Data analysis followed the data collection, saturation and transcription. We were inspired by the grounded theory aspects which was used during our analysis beginning the transcription and coding of the text aimed at searching for the key topics and aspects related to Irish language teaching and revitalization.

3. Findings

Irish Language Teaching

As being indicated in *20-Year Strategy for the Irish Language 2010–2030*, made by the Government of Ireland, the key focus of the strategy is to strengthen the position of the language within education system, while the transmission of Irish as a living language within family and between generations is critically important. The strategy is hugely in favour of creating a supportive framework and the opportunities in which Irish can be used on in a natural way within households and communities which is stressed to be important for all the areas. Gaeltacht areas (the areas situated mostly in the western part of the country in which predominant language spoken is Irish) are crucially important for Irish language revitalization and language survival as it was pointed out by our respondent from Galway – Mayo Institute of Technology: *„The heartland of Irish language (Gaeltacht) is in danger, if it collapses, we will not be able to revive Irish language anymore, that connection will be gone, the strength from geographical community would be lost if that is not supported.“*

The strategy is aimed at reaching societal bilingualism so that the inhabitants are fluent in both official languages. These aims have created challenge not only for government but also for the people. What matters most are the attitudes towards language protection given the fact that the right to speak a particular language is deemed as one of the democratic choices of every individual.

The *20-Year Strategy for the Irish Language* has been inspired by the *Government Statement on the Irish Language*, published in December 2006. Following the Statement, there are thirteen policy objectives included, aimed at Government´s support for the development and preservation of the Irish language and the Gaeltacht (as a unique region, a part of cultural heritage of the nation, not only geopolitically (in terms of area) but also geoartistically defined as a well or a fountain of Irish language. We have selected especially those objectives which concern teaching of Irish and teaching through the medium of Irish. In this respect, the second objective seems of great importance as it contains the information referring to *the Official Languages Act 2003*, which is another important legal document concerning the Irish language. In the act, there is noted that the right of the public to use Irish in dealings with the State and with other bodies will be developed and the appropriate arrangements to deliver this will be put in place (Slatinská, 2015). One of our informants stated that *„the Official Languages Act was a good idea as there are still people who do not feel comfortable in speaking English and it is their right to speak in their native language, there are still people from the islands who did not have English so much and we have to look after them.“*

After making reference to another significant legal document, we focus on other objectives concerning the education, namely on Objectives no. 5, 6 and 7 introduced in the Government Statement on the Irish language. The objective no. 5 states that Irish will be taught as an obligatory subject from primary to Leaving Certificate level. The curriculum will foster oral and written competence in Irish among students and an understanding of its value to people. This objective is intended to be realized by enhanced investment in professional development and ongoing support for teachers, as well as in provision of textbooks and resources, and, what is of crucial importance for this paper, through the support for innovative approaches to teaching and learning which are crucially needed. Innovative approaches could eliminate students´ fears in expressing themselves through Irish and help them reach confidence when speaking as it was described in the following opinion*: „There is a fear factor involved with Irish language if you are not fluent, people are afraid if they make mistakes.“*

Gaelscoileanna (Irish-medium education) will continue to be supported at primary level and all-Irish provision at postprimary level will be developed to meet follow-on demand. Majority of our respondents saw benefits of Irish medium schools pointing out to the fact that the students from these schools tend to perform better referring to their school results as it was described by one of our informants: *„Gaelscoileanna is a good thing, very good experience, it has grown because people have been happy with it, teachers here are more enthusiastic, younger, it is good for identity, even though there is element of elitism. In previous generations people who spoke Irish were considered to be country people, they were ashamed of speaking Irish in the town, now people are much more open to multilingualism.“*

As it can be deduced from the previous statement, the Irish language nowadays has gained a new status which makes it more prestigious and trendy for students to study it and find

employment later on in their lives for which the Irish language is required. One of our informants stated that: *„The children in gaelscoils have higher academic achievements. It seems that if there is going to be economic dividend from language and culture then it can become popular, but in the absence of any economic benefits the language is seen as redundant and unnecessary.“* People who speak Irish language fluently nowadays can be hired by a range of interpreting and translation agencies in Ireland as well as in European Union institutions. Moreover, there are many opportunities to get a good teaching position with Irish in the education sector which can be a motivation to study Irish at universities.

Many students responded that they would like to continue transmitting the Irish language to their children which is a good sign for the language vitality and sustainability. There are still families in Ireland who decided to raise their children through the medium of Irish as the following statement indicates: *„Your parents decide about the first language, it is a huge impact. Now we have two kids, their first language is Irish, we have got Irish household. Everybody is responsible for language protection, I am making my contribution to survival of Irish, you must be positive and not negative if you want to inspire other people, to show people, to make them wanting be like you.“* Establishing Irish language household can help reach the goals of the 20-Year Strategy concerning the societal bilingualism. Bilingualism is beneficial in each possible way since cognition skills multiply. It is about mental exercise, engagement with the world is better. Bilingualism was evaluated positively by all of our respondents although much concern was raised about the lack of information concerning the advantages of raising children bilingually: *„Mothers and young parents should be educated about bilingualism and how language transmission works. It must be backed by community. Language and language choice is unquantifiable because it is do deeply ingrained in psychology.“*

In connection with Objective no. 7, Irish language pre-school education will continue to be supported and third-level education through Irish will be further developed. This is one of the ways how to ensure language revitalization and normalization through the very early age beginning with immersion education which can help a lot in the long-term horizon as one of our respondents described*: „It is very important to focus on initial/preschool years in order to support intergenerational transmission of Irish.“*

Objective no. 9 is oriented on high quality broadcast services through the medium of Irish that will be ensured especially through the continuous development of RTÉ, Raidió na Gaeltachta and TG4. Teachers have got also wide range of possibilities to work with Irish-medium channels in the Irish language classes just to show students that the language is still being used as it was stressed by our interviewee: *„Media play a huge role in identity formation, documentaries are very important, people see role models in TV. TG4 is important, for old generation it is also Raidió na Gaeltachta, there is also soap opera on TG4 which is all good. Audiovisual industry shows the value of language, at least there are certain jobs, it attracts young people and keeping them in the area.“*

Another objective, not included specifically in the 13 objectives, is an objective of Government to support the promotion and teaching of Irish abroad, through the Department of Foreign Affairs and the Department of Community, Equality and Gaeltacht Affairs. One of the emphases is fixated on the teaching of Irish in third-level colleges in a range of different countries. Following the financial support from the DAHG (Department of Arts, Heritage and the Gaeltacht Affairs) Irish language teaching is supported in many European and non-European universities. This also helps keeping the language alive and sustainable. One of the huge benefits is the fact that students from non-Irish universities can get a lot of information through Irish language tutor on the Irish language, culture and identity.

Following the Government Strategy, the main aims are translated into the activities aimed at increasing the knowledge of Irish, creating opportunities for the use of Irish and fostering positive attitudes towards its use (Slatinská, Pecníková, 2016).

Taking into account the specific objectives of the strategy striving to increase the number of people with a knowledge of Irish from 1, 66 to 2 million and the number of daily speakers of Irish from the current level of approximately 83, 000 to 250,000, we have to explore what changes have happened at schools. Moreover, according to the Strategy, education is one of the areas designed for action.

As it is further indicated in the Strategy, the Irish language teaching must be unconditionally improved taking into account weak knowledge of students as well of teachers and unwillingness to learn the language, probably because of less attractive teaching approaches carried out during lessons. *„The Irish language courses were deadly boring, using older literature, there was very little proper conversation. The curriculum has changed since I left school but still more contemporary Irish poetry and books should be used and only then the students should go to old literature."* Irish language teaching must inevitably get new support and include more innovative approaches during classes as it was described by another of our informants: *„Irish children should be taught by using experiential method because Irish do not have so much self-confidence, they must be taught by hiking, cooking via Irish, learning by experience to open their mouths."*

Resulting from the abovementioned information, the actions proposed in the area of education are designed to achieve the underlying principles of the Strategy which include enhancement and extension of ability in Irish more deeply and among larger numbers of people, reversing negative attitudes towards Irish language usage and fostering positive attitudes in their place and expanding the available opportunities for the use of Irish within education system by extending Irish as a medium of instruction, as well as a subject, and by linking school language learning to the informal use of Irish in recreational, cultural and other out-of school activities. The fact that language should be taught through culture and culture through language was expressed by many of our interviewees who was also aware of the huge potential that Irish language knowledge can have in terms of other languages´ acquisition: *"Language interwine with culture and art, culture must be alive, we need new songs, theatre in Irish, modern artists, contemporary literature. Multiculturalism is important. Language is one of the attributes of the cultural identity, knowing Irish helped me to understand other languages (Spanish), Irish is more expressive than English, appreciation of our history is needed."*

Bearing in mind current innovative methods used in the 21st century and the humanistic approach to education, each child should be viewed as having a unique identity (Biloveský, 2013). As mentioned by Kosová (2011) the main aim of school transformation is to transform the traditional encyclopedia-memorizing and directive education into a creative-human education with emphases being laid on activity and freedom of personality and its power to make progressive, creative way of existence for life in the new millennium. According to our point of view, the use of Irish by connecting the subject with everyday life might be highly beneficial for its further development making it more authentic, attractive and popular among the learners.

Moreover, the Strategy is aimed not only at students and teachers (through developing their language fluency and accuracy) but also at family and the support of family in Irish language learning. Family is the cornerstone of society playing a huge role in language acquisition of the child. Many of our respondents were raised through the medium of Irish: „I would feel Irish language part of my identity, my language is very important, my parents spoke only Irish to me, even now when my Irish is rusty I can still use it when I need it, when I meet native Irish speakers." Therefore, one of the areas which the Strategy tries to hit by instant support is the area of family.

New Methods Used in Irish language Teaching

Considering the fact that the era in which we live is influenced to a great extent by new communication and media technologies, the teachers must voluntarily or involuntarily face new methods and devices used in language teaching. According to *the 20-Year Strategy for the Irish Language 2010–2030,* building ability in reading, writing and speech must count with the recent developments in media and technology. Therefore, traditional approaches must be seriously combined with new approaches and innovative means in language learning as it was pointed out by our respondent*: „Irish children should be taught by using experiential method because Irish do not have so much self-confidence, they must be taught by hiking, cooking via Irish, learning by experience to open their mouths."*

The new innovative methods combine several activities that can be fully developed not only while Irish language teaching, e.g.: organization of literary events and activities in public libraries throughout the year, authors´ readings and literary programmes for schools, which means bringing public and private life of a students in contact, development of new materials, CDs, DVDs and books in Irish, promotion and development of books clubs in Irish, development of at least one physical literary Irish-language venue or space in Dublin, development of a literary promotion by

RTÉ and TG4, development of new up-to-date dictionaries, both English-Irish and Irish-English as well as development of initiatives to encourage writing in Irish by young people in a range of media – journalism, blogging, creative writing, drama and film scripts.

The last point seems especially important for this day´s generation of young people who communicate quite a lot through the medium of blogs and other social networks which is also a place for new identity creation. Therefore, the teacher of the 21st century should take all the mentioned facts into account and bear them in mind when coming to the classroom. Moreover, the teacher of the Irish language should be aware of the fact that teaching English, French or German is much different from teaching Irish. *„There is big difference in teaching languages, Irish is very much about poetry and I wanted to speak, it was just about reciting, these days it might be the same, it was very mechanical, I knew more French than Irish, Irish was more by heart, too strict, while in French you learnt how to speak, Irish was deadly boring."*

Following the new innovative methods used in Irish language teaching, CLIL is used in the whole island of Ireland as a part of mainstream school education according to the brochure bearing the title Content and Language Integrated Learning at School in Europe, which means that it is an integral part of one or more levels of the education system and not limited in time. CLIL is used precisely in primary and secondary education. In the Republic of Ireland as well as in other European countries any subject may be chosen for CLIL from among those on offer. Moreover, the minimum amount of time for this type of provision is not indicated in any specific recommendation. In general secondary education pupils may choose to be assessed in the target language or the language of the mainstream curriculum (they can choose either Irish or English). Qualifications required for teaching CLIL provision in primary and secondary education in the Republic of Ireland are the same as in Slovakia i.e. the teacher must meet the basic qualification(s) of a fully qualified teacher. CLIL as a term is not used except by specialists in language education.

According to Ó Duibhir (2011) evidence show that language learning is more effective when it is combined with content learning in another subject other than the language being learned. They also stress that the context of Irish primary schools is particularly favourable to using CLIL in teaching Irish as a second or additional language as all primary teachers need to demonstrate a satisfactory level of competence in Irish to gain full recognition as primary school teachers. In the context of the Republic of Ireland there could be applied three ways of using CLIL. One of them is that individual teachers could consider using CLIL informally, either in their language class or by teaching content from other subjects areas through Irish from time to time, second would mean that schools could decide to offer an extended core programme where a number of subjects or aspects of subject would be taught through Irish in a more explicit way, or third option would be for schools to be able to choose to offer partial immersion programmes for up to 50 % of instructional time. However, the last possibility would require the support of parents and the school community as well as support for the teachers in the course of professional development and provision of resources.

As it was later shown in other research´s findings, a significantly higher level of achievement in Irish was attained through classes which conducted some Irish-medium instruction outside of the Irish lesson proper. Following the mentioned findings, the CLIL instruction may be an effective way to teach Irish in Irish primary schools. There were also several projects undertaken dealing with CLIL method. It seems highly beneficial that a number of principles were agreed with the teachers with regard to teaching the lesson, like, e.g. that in the beginning teachers would accept questions from pupils in English but answer them in simple Irish, and later they would rephrase those questions given in English in Irish. Throughout the time, the pupils should gradually be encouraged to use Irish (Harris, Duibhir, 2011). This method seems to be very effective especially at primary levels when students start with language acquisition.

On the one hand, using CLIL seems highly beneficial for mental cognition of students. Therefore one should be also aware of the negative aspects of too rigid curriculum which should be minimized gradually as it was indicated by another informant: *„There are a lot of faults in our education system. It is curriculum based system just concentrating on exams during secondary school education, there is no room from observing, going outside the sylabus."* Many of our respondents criticized the education system according to their own school experience: *„Irish is not difficult but it is about the way it is taught, I could speak French better after 14 years of school. I can speak French better than Irish, it is disgrace for me. Teaching system is very bad – learning*

off by notes, by heart and then doing the leaving certificate, a kind of authoritarian way of looking at things, teaching policies must be changed.“ This is also one of the areas which should undergo a reform.

Another important method used in order to strengthen the pupil´s knowledge of a target language is using stories. The stories can be to a great extent used for teaching students about different cultures as well as about the culture of their own (Mešková, 2016). In such a way, the stories talking about the fairy life of Ireland could be incorporated into language learning. In such a way, pupils´ awareness of their own cultural heritage through the medium of written word could be fostered. As it is known, using stories in a lesson can help foster pupil´s creativity, especially thanks to various post exercises aimed at developing learners ´creative thinking.

Moreover, the student's interests connected with recent development in the area of information technologies should be also taken into account by the teacher. The students should be encouraged to participate in such blogs or websites that are beneficial for education like the one where the fans of Irish language regularly contribute or share their knowledge and speak the language actively.

As being put by Dailey (2012) the increased use of Irish online and around the world could help foster the power of the language. In the article included in BBC News Magazine, the author describes the state of the Irish abroad and indicates the efforts of the people in America, the ancestors of the Hibernian Irish, who have created so called virtual Gaeltachts where they can meet virtually and share information of common interest. The creation of such blogs where students could share their opinions in Irish could be seen as a positive aspect and make make the language learning more authentic, attractive and enjoyed.

4. Discussion

Challenges faced not only by Irish Language Teachers

In the subsequent part we would like to focus on some selected challenges faced not only by the Irish language teachers but also by students as well as many organizations aimed at Irish language preservation and cultivation. Every teacher has got possibility to choose from a wide range of teaching material or teaching methods. Parents realize that first of all new opportunities and Irish-language networks must be created in order to revitalize the language so that it will be trendy for new generations who will be inclined to learn it: „Irish is not cool for my kids, they just do it for exams, they cannot use it in the shop, in every day life.“ Only when the primary feeling of being obliged to learn the language finally disappears, then solid foundations for language revitalization and normalization can be made.

When speaking about challenges for Irish language teachers, one should have a look at challenges faced by those teachers who teach in Irish medium schools or at schools where Irish is taught as a second language. According to Markey (2007) recent studies show that pupils in Irish-medium schools tend to be both motivated to learn Irish and show favorable attitudes towards the language. Although students from gaelscoils have got different approach to language, there is still lack of Irish-language networks where they could use the language actively. That is the main reason why many mainstream school students, but not only, do not view learning Irish as a good thing: *„Irish was deadly boring, very mechanical, it was very much about poetry, learning by heart, reciting poems, while in French you were taught how to speak. Irish is nice thing to have but French would be more useful for us.“*

Following the learning of Irish as a second language, according to Markey (2007), there are also several challenges and difficulties that education system must face. The situation is quite different in comparison with Irish-medium schools. Only a minority of non-native speaker students leave school with the capacity to participate in social or cultural events conducted through the medium of Irish. Moreover, what seems to be quite striking, is the fact that for the majority learning Irish is perceived as necessary evil, a price one pays of citizenship perhaps, but essentially a waste of time. Consequently, because of poor motivation and underachievement, learning Irish as L2 in English medium primary and postprimary schools has proved extremely difficult and has resulted in negative attitudes towards the language. As it can be seen, a reform needs to be done in the future to tackle the mentioned issues in order to stop the difficulties in Irish language teaching and learning.

Taking a step back, when facing discrepancies, one must have a look at some historical consequences that had a huge effect on the number of Irish speaking people, starting with potato famine of 1840s followed by vast emigration of the Irish people abroad. According the Mercator European Research Centre on Multilingualism and Language Learning Ireland is still facing the emigration problem. On one hand, diaspora reduced the number of those Irish speaking migrants, returning home with non-Irish speaking wives but, on the other hand, diaspora also contains many Irish speakers who wish to re-possess the language of their forbearers. Therefore, there are departments of Irish studies at many universities abroad.

To sum up, only future will show the successful or unsuccessful realization of Strategy objectives. Didactics of teaching languages has undergone different phases by applying different methods with less or more positive effects. One thing is sure, however, education has been always playing one of the most prominent roles in fostering cultural heritage of the state, of which the language is the integral part. It means that outside of school it can be fostered further by family units as well as by other significant organizations (Údarás na Gaeltachta, Forás na Gaelige, Conradh na Gaelige, etc.). The attitudes of parents towards language issues can motivate children to keep the language alive as it was stated in the following opinion: „I was positively inclined to Irish language, my sister, my parents spoke Irish language, all was done via Irish language, we had great foundation in Irish language." Last but not least, the education process alone needs to reflect new challenges faced by both teachers and students, not excluding the socio-historical context of Irish language development and new tendencies and policy towards its preservation and cultivation.

5. Conclusion

The main aim of the article was to provide the reader with some selected aspects concerning the Irish language teaching in the Republic of Ireland. Firstly, we have outlined the basic legal documents in which the Irish language is defined.

The paper was developed on the basis of the idea that Irish language plays an important role in terms of national and cultural identity of the Irish. We also dealt with new methods and devices used in Irish language teaching and new challenges that Irish language teachers as well as students have to face.

As an important document full of useful data concerning the topic of future development of the Irish language in the future can be considered the document titled 20-Year Strategy for the Irish Language 2010–2030 which was the source of immense information about the objectives and activities that are already in process regarding the Irish language. It is only to wait what the future brings in the span of twenty years since the Strategy was initiated.

To sum up, Irish language cultivation and preservation seems to be of utmost importance for the cultural and national identity of the Irish. There are many opinions that without Irish language Ireland would not be Ireland, but a different country. There were several events in the past that influenced the number of Irish speakers negatively, but revival movements of the late 19th and 20th century brought new hope to language movement. On one hand, a lot of migrants are returning back from abroad with the idea to re-possess the Irish language again. On the other hand, many ancestors of Hibernian Irish try to reconnect with their roots in America via establishments of their own virtual Gaeltachts.

Many of our respondents proposed the idea that a reform should be adopted in terms of Irish language teaching. There have been several new innovative methods being incorporated into teaching (like CLIL, although it is not titled like that specifically), there is still a long way ahead before making the number of Irish speakers increased and more students motivated and ready to use Irish outside schools, i.e. at homes or among friends. We hope that the objectives of the 20-Year Strategy will be successfully realized in the period leading up to 2020 given the fact that Irish language is still considered as one of the important elements of Irish cultural and national identity.

To conclude, it would be very difficult, maybe almost a waste of time, to focus only on searching for the best teaching methods which could be effectively applied during Irish language classes. There are a lot of factors we must consider when talking about language learning and teaching. Motivation and attitudes of teachers and students towards the subject play a huge role in determining the success of the teaching process. Sometimes even old-fashioned teaching methods

can be used in a very innovative way. Even an old idea can be transformed into a new one with certain modifications. Maybe the best solution could be found by looking for the way in the middle respecting the old and understanding the new so that something totally unique can be created.

One of the ways how to ensure successful language acquisition could be teaching the language through culture and culture through language so that the students can become aware of their roots and rich cultural heritage they posses as a nation. We have come to the conclusion that language learning intertwines with culture. One without other cannot exist during language classes. The students must come into grasp with this fact so that they can also answer the question why they study a particular language.

In the Republic of Ireland, the Irish language is the first national and official language. First of all, the students have to understand that language is not a material object. Language is much more. It is part of our spiritual heritage we must look after. If we do not look after language, then it can die very easily. Using a particular language is part of our individual identity. Every word used has got a creative power on us and our environment. Language is a very powerful means. When learning a language, we are also learning about who we are and where we come from. We assume that when learning a language we are also learning the truth about ourselves and our own lives.

When studying Irish, students should be gradually introduced to the issues concerning their roots, heritage, culture and ancestry which can help them understand the question why Irish is a compulsory subject within the curriculum. When students consider learning Irish as a good thing, then they are also treating it well which helps the language revitalization.

The important task of teachers is to motivate the students and wake up their interest in language and deep study of language not only for their future jobs, but also for the sake of their own identity development. To summarize, no language should be minimized to just an economic asset. Language is part of our identity, culture and heritage.

According to Šatava (2013) those who describe the language revitalization efforts as a mere waste of time for something that counts only for a few hundred or a few thousand people, reduce the human existence to only one aspect. All languages spoken in the world generate immense national cultural wealth and help to make their community unique. All languages are crucial and invaluable elements of cultural and linguistic diversity of the world and the spiritual heritage of humankind, therefore should be treated with respect and honour.

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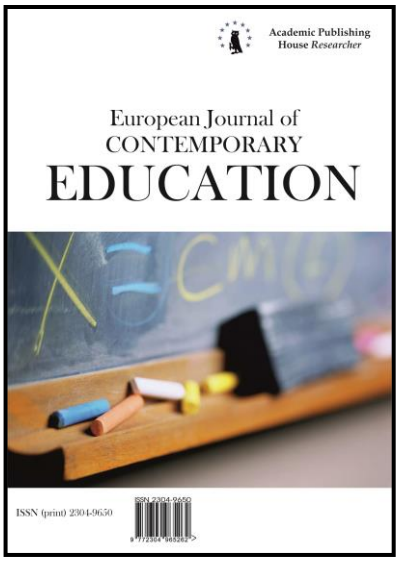

Continuous Linguistic Rhetorical Education as a Means of Optimizing Language Policy in Russian Multinational Regions

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Abstract

Drawing on the function of Russian as a state language the paper proposes a concept of continuous linguistic rhetorical (LR) education perceived as a means of optimizing language policy in Russian multinational regions. LR education as an innovative pedagogical system shapes a learner's readiness for self-projection as a strong linguistic personality of a dialogical, democratic, multicultural type transformed into a professional linguistic personality at the higher school level. From the standpoint of parity and mutual complementarity of languages in the context of national-Russian bilingualism and multilingualism the article outlines principles of bi (poly) linguistic education. The latter contributes to the formation of substructures of a learner's "primary" and "secondary" linguistic personalities on the complex basis of the integral LR competence of a mixed type with a successive formation of a learner as an active and conscientious subject of the discursive processes of the 21st century Russian multiethnic socio-cultural and educational space at all educational levels. From the process-dynamic perspective the goal of the innovative pedagogical process suggested by the system of continuous LR education in multi-national regions consists in forming a learner's readiness for effective communicative-cognitive activity on the basis of bi(poly) linguistic LR competence of a mixed type. The components of this readiness include motivation-volitional, informational-semantic, operational-actional, empirical; the criteria for the readiness level are motivational, reflexive, theoretical, practical.

Keywords: Sochi Linguistic Rhetorical (LR) School, upgrading Russian education, competence approach, language policy, national-Russian bilingualism, Russian as a state language, bi(poly)linguistic model of LR education.

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1. Introduction

Problems of balanced language policy in a multinational state are important not only for the Russian Federation, but also for other countries of near and far abroad. Therefore they attract the attention of educators, linguists, sociologists, psychologists, political scientists and other specialists which is testified by recent numerous publications. For example, the philologists of the Kabardino-Balkaria Republic regularly and profoundly deal with the problems of language education in the North Caucasus "in the ethnoregional multilinguistic environment" (Bashieva et al., 2014; Bashieva et al., 2015; Bashieva et al., 2017, and others). The researchers study the formation of a linguistic personality in a multinational region from the perspective of the Russian-wide and ethno-cultural identity of the North Caucasian peoples (Bashieva et al., 2013a) with a special attention to the language of instruction at the elementary educational level (Bashieva et al., 2013b), as well as the formation of a bi-linguistic personality as a complex cognitive process (Bashieva, 2014), bilingualism and multilingualism as a unifying foundation of North Caucasian sociolinguistic and cultural communities (Bashieva & Dohova, 2016), etc. The cited works suggest that the learners' native language should be used in those regions while the transfer to teaching in the Kabardin and Balkar languages (especially in rural schools) fails to solve the problem of mastering the mother tongue which is lost in a multilinguistic environment.

We proposed a conception of continuous linguistic rhetorical (LR) education in its bi(poly)linguistic modification which is topical for the multinational regions of the Russian Federation and can serve as a means for optimizing language policy in the context of national-Russian bilingualism and multilingualism.

The proposed conception rests on a number of basic concepts:

The linguistic personality is the subject of receptive-analytical, reproductive-constructive and productive-creative communicative-cognitive activity concerning perception, processing and production of information about the world and humans in the form of a coherent speech flow, i.e. discourses of various types, recorded in texts of different genres and styles as semiotic results of cognitive processes.

The secondary linguistic personality is the subject of cognitive activity performed in a foreign language within the psycholinguistic continuum of the other culture mentality, being incorporated into perception, processing and production of information about the world and humans in the form of a stream of connected speech, i.e. discourses of differing genres and styles, as a semiotic result of the cognitive process in one (bilingualism) or several (multilingualism) non-native languages.

The linguistic personality's integral LR competence is a complex of knowledge, skills and habits of the subject of discursive processes concerning language operations (the sphere of linguistics), textual acts and communicative activities (the sphere of rhetoric). The structure of LR competence subsumes three sub-competences correlating with the "language – speech – speech activity" trichotomy: linguistic, textual and communicative. In the context of cross-linguistic communication, the fourth – ethnocultural-verbal – subcompetence turns out to be important. The mechanisms for implementing the integral LR competence – orientational, inventive, dispositional, elocutionary, mnemonic, actional, editorial-reflective, psycho-rhetorical (feedback of the addressee) – constitute psycholinguistic complexes of interdependent skills and abilities. They allow the subject of discursive processes to carry out effective cognitive activity in the receptive-analytical, re-productive and constructive-productive registers, oral and written forms, monological and dialogical modes of socio-cultural communication, various styles, types and genres of speech. Language as a "giant mnemonic conglomerate" (B.M Gasparov) brings about the idea about the priority of the mnemonic mechanism of implementing LR competence in the system of continuous bi(poly)linguistic education.

The integral LR competence is the medium of the foundations of cognitive activity of the subject of discursive processes. Those foundations are spiritual-moral (ethos), emotional-volitional (pathos), intellectual-mental, discursive (logos) and intuitive-integral comprehension (sophia). LR competence taken in the totality of its subcompetences and implementation mechanisms is posed as a method of internalizing, structuring and verbalizing the contents of the linguistic personality's other competencies which are developed according to the Federal State Educational Standards: overall, general professional and special.

2. Materials and methods

The material for the article is based on the results obtained by Sochi LR school representatives: dissertations and research projects as well as data from the project "Continuous Linguistic Rhetorical Education: Scientific and Methodological Recommendations for the Southern Federal District".

In the examples below the size of experimental and control groups is 31 and 32 students (Table 1) and 65 and 66 schoolchildren (Table 2) respectively.

The study employs the systemic and synergistic approaches as well as general scientific methods: comparative analysis, categorization of concepts, modeling, quantitative analysis, etc. The complex LR method combining the concepts of anthropocentric and systematic linguistics, rhetoric and new rhetoric is applied to the study of cognitive phenomena, discursive processes and textual corpuses as their products. General pedagogy, professional education theory and methodology are represented by the following methods: observation and analysis of educational and methodological materials, of products of pedagogical and educational activities; algorithms of pedagogical project-formation (Tyunnikov, 2000); testing, interviewing, pedagogical experiments, etc.

3. Discussion

We develop the principles of designing LR education system as an innovative pedagogical phenomenon correlating with the existing stages of forming and testing this concept ion as their meaningful generalizations (Figure 1):

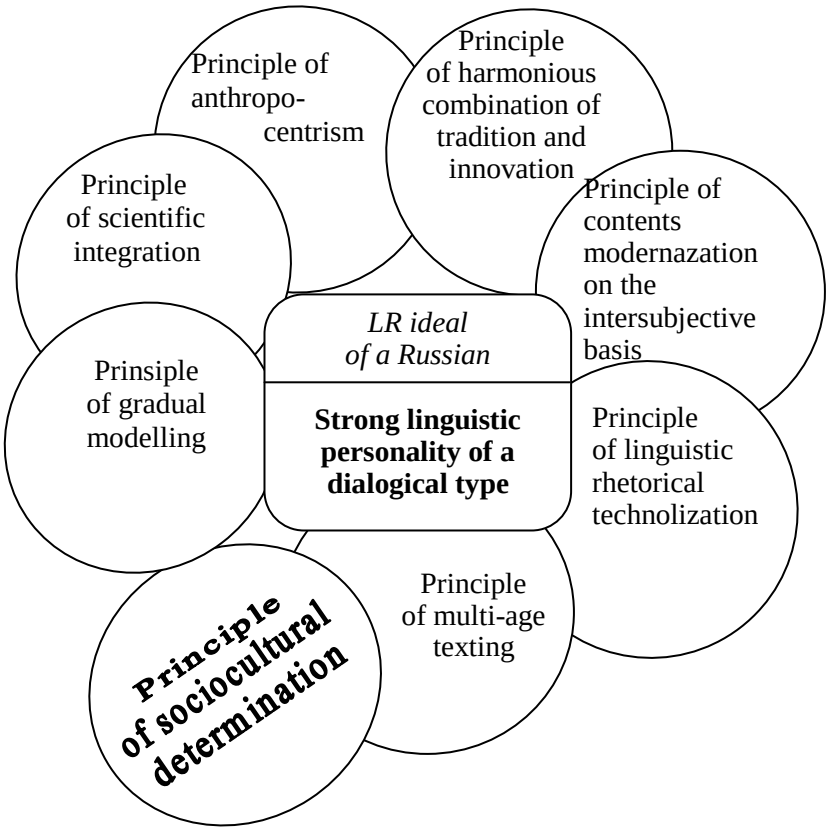

Fig. 1. Principles of projecting LR education as an innovative pedagogical system.

The principle of sociocultural determination provides the tracking of the dynamism of sociocultural realities so as to respond timely and adequately so as keep balance between the social system and educational practice; predetermines the dependence of the LR education conception on the genuine needs of the cultural and educational environment with respect to forming the communicative cognitive culture of the linguistic personality as a whole and its reproduction in

future generations with desirable modifications. *The principle of scientific integration* provides for the synthesis of available philological, psychological and pedagogical research prerequisites for the design of the educational process concerning communicative cognitive training according to the LR approach; integration of achievements, new trends in science and practice within the framework of the secondary methodology derived from systemic and synergetic approaches.

The principle of anthropocentrism provides for the interdependent development of theoretical and methodological aspects of the LR educational conception: the linguistic personality as an initial research construct, the structure of the integral LR competence, the mechanisms for its implementation in different registers, regimes, forms of communication as the theoretical basis for teaching the language; outlining the strategic goal of educational policy concerning language and speech as the formation of a strong linguistic personality of a democratic type, etc.).

The principle of harmonious combination of tradition and innovation provides for the successive nature of innovative policies that support progressive trends in the theory and practice of national language education.

The principle of step-by-step modeling provides for the construction of a successive model chain that specifies the contemporary modification of the national LR ideal as a strategic goal of education for different levels.

The principle of content modernization on the interdisciplinary basis provides for upgrading the courses (primarily philological and methodological) meant for different educational levels, rhetorization of the educational and upbringing process drawing on all disciplines treated as a subject of speech activity; creation of a set of successive educational syllabuses, teaching and methodological aids on the LR conceptual basis.

The principle of technological development provides for the correspondence of the instrumental technological support for the educational process concerning the sphere of studying language, speech, literature, world culture, and all other disciplines so as to achieve the ultimate goal of forming a strong linguistic personality of a democratic type.

The principle of multi-age testing provides for the parallel experimental work with linguistic personalities of different generations in their interaction, the simultaneous formation of LR competence of the students of pedagogical specialties, educators, teachers reaching schoolchildren; the specificity of the formation and functioning of the integral LR competence at different age and education levels is explicit for all learners generating an effect of mutual teaching.

The strategic goal of the continuous LR education is a successive formation of a learner's readiness for self-projection as a strong linguistic personality with a systemic self-development of a future specialist of any profile at the higher education level in keeping with the I-concept of a professional linguistic personality. Within the framework of the formative experimental work covering the stages from elementary school to the post-graduate level, the corresponding instrumental and technological support was registered. Each subsequent step registers a limited number of first-time pedagogical tools, types of tasks and exercises against the background of emphasized innovations introduced into the basic pedagogical toolkit (the method of modeling rhetorical events as the leading one and specifying its methods: receptive-analytical, reproductive-constructive, productive-creative in the monological and dialogical modes, oral and written communication forms). The culturological basis serves for the development of LR educational strategies and tactics in the form of a scientific methodical syllabus with the justification of the educational policy concerning the Russian language: the transformation of the post-Soviet language situation in Russia into a genuinely democratic one which is specified in the monograph (Vorozhbitova, 2015).

The theoretical theses outlined above are exemplified by the results of a forming experiment with the history students of the socio-pedagogical faculty at Sochi State University on the topic "The linguistic rhetorical ideal as a forming factor of a teacher's professional linguistic personality". Fig. 2. demonstrates the dynamics of indicators according to the value-orientation criterion of readiness for speech self-improvement based on the LR ideal.

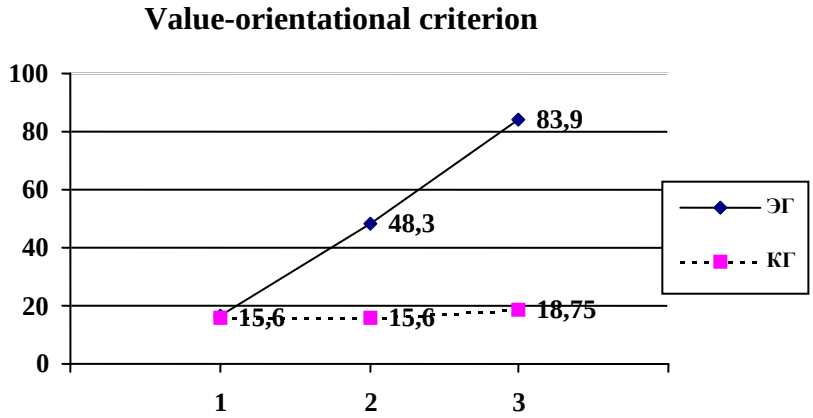

Fig. 2. Dynamics of value-orientational indicators according to the criterion of readiness for personal development on the basis of LR ideal (%).

The final diagnostics recorded significant positive changes in personal and professional orientation of the students in the experimental group: they demonstrated an increase in the levels of social motivation, self-esteem and more objective self-assessment (Table 1). The significance of the percentage indicators in the experimental and control groups was checked by mathematical methods (Yuryeva and Vorozhbitova, 2014).

Table 1. The results of the final diagnostics in the experimental (EG) and control groups (CG)

Criterion for readiness for communicative self-improvement according to the LR ideal	Initial diagnostics		Intermediate diagnostics		Final diagnostics	
	EG	CG	EG	CG	EG	CG
1) value-orientational	16,6%	15,6%	48,3%	15,6%	83,9%	18,75%
– knowledge level	31%	33%	62%	51,8%	83%	12,5%
– professional orientation	20%	12,5%	48,3%	15,6%	67%	25%
2) self-evaluative	80%	74%	46%	78%	52%	81%
3) motivational	15%	18%	58%	17,2%	82,6%	19,4%
4) professional-communicative	13,3%	15,2%	43%	37,5%	80%	46%

We checked the significance of the difference in the percentages of the experimental and control groups using a special formula (Kyveryalg, 1971):

$t = \frac{D}{mD}\%$, where t is the critical ratio. If t > 3, then the difference of two percentages can be considered reliable.

D = p1 - p2 – is the difference between the percentage numbers

(p1 is the percentage of achievement in the experimental group, p2 is the percentage in the control group)

mD% is the average error of the difference of percentage numbers. It is calculated by the formula:

$$mD\% = \frac{p1q1 + p2q2}{n1 \times n2,}$$ *, where*

n1 –is the number of students in the experimental group;

n2 - is the number of students in the control group;

q1 = 100 - p1, q2 = 100 - p2

In this way, we verified the significance of each criterion of the percentage indicators in the final diagnostics in Table 1. Accordingly, in the process of determining the significance of the

difference in the percentage of students' achievement in the experimental and control groups, the following results were obtained:

according to the value-orientation criterion: D = 42% mD% = 4.11% t = 10.1;
according to the level of knowledge: D = 70.5% mD% = 2.52% t = 27.9
according to the professional orientation: D = 65.15% mD% = 2.9% t = 22.4;
according to the motivational criterion: D = 63.2% mD% = 3.025% t = 20.8;
according to the professional-communicative criterion: D = 34% mD% = 4.11% t = 8.26.

(Self-assessment of the students in the experimental group became more adequate, in the control group it remained overestimated).

The data given above has led us to the conclusion that since t> 3, the difference in percentages in the experimental and control groups can be considered undoubtedly reliable.

We conducted the pedagogical investigation into the bilinguistic aspect of school and university education: 1) Russian as a mother tongue or "the second native language" (for learners of other nationalities in Sochi); 2) a studied foreign language (English). The mixed, balanced bilingualism was found preferable for the continuous LR system (Timofeev & Vorozhbitova, 2014) since in case of mixed bilingualism two sets of linguistic symbols are associated with the same set of concepts, while in case of coordinated bilingualism the symbols are related to two groups of concepts (Hamers, Blanc, 2000). It is obvious that the mixed bilingualism has undeniable advantages over the coordinated type, since the units of the "verbal-semantic level of the linguistic personality" (Karaulov, 2002) speaking different languages refer to the same concepts of the cognitive level. In other words, they are indirectly related to each other with a significant reduction in the number of errors when speakers switch languages.

The pilot work on the LR development of the communicative culture was carried out in the context of multilinguistic education at Sochi Gymnasium No 1. This is the elementary level with teaching foreign languages: English (from the first grade), French (from the second grade), German (from the fourth grade, optional). The role of the coordinating nucleus was performed by the original optional course "Master of Communication", which includes components in Russian and foreign languages.

Below you can find the data exemplifying the achievements of the second grade learners: the initial diagnostics was carried out at the beginning of the second year of study, the final one took place at the beginning of the third year after the summer holidays (assessment of the children's residual knowledge). The results of the initial and final diagnostics can be found in Table 2.

Table 2. The results of the initial and final diagnostics of the learners' knowledge in the experimental (EG) and control groups (CG)

Groups	Distribution of the pupils of the EG and CG with respect to communicative culture											
	Initial diagnostics						Final diagnostics					
	high		Medium		low		high		medium		low	
	pers.	%	pers.	%	pers.	%	pers.	%	pers.	%	pers.	%
Value-motivational criterion												
EG-1, 2, 3	4	6	44	68	17	26	65	100	0	0	0	0
CG-1, 2, 3	3	4	58	88	5	8	5	7	58	88	3	5
Knowledge criterion												
EG-1, 2, 3	6	9	44	68	15	23	54	83	8	12	3	5
CG-1, 2, 3	9	14	38	57	19	29	13	20	40	60	13	20
Practical criterion												
EG-1, 2, 3	0	0	31	48	34	52	25	38	39	60	1	2
CG-1, 2, 3	0	0	36	55	30	45	0	0	38	58	28	42
Reflexive criterion												
EG-1, 2, 3	5	8	57	87	3	5	63	97	2	3	0	0
CG-1, 2, 3	7	11	54	82	5	7	12	18	52	79	2	3

The significance of the experiment results was verified by Pearson's chi-squared test: the values of χ^2 for the experimental groups in comparison with the control groups confirmed the

significance of differences in the distribution of children in terms of communicative culture between the initial and final diagnostics.

Control groups: values χ^2 = 1,5; 0.96; 0; 0.859. The corresponding (n-1) = 2 value of χ^2 with a significance level of p = 0.05 is 5.99. Since the empirical values of the criterion are less than the critical value χ^2, the obtained result does not confirm the significance of the differences in the distribution of schoolchildren in terms of communicative culture between the initial and final checks in the control group.

Experimental groups: values χ^2 = 20,045, 106,974; 9,308; 18,181. The corresponding (n-1) = 2 value of χ^2 with a significance level of p = 0.05 is 5.99. As can be seen, χ^2 observations are larger than the table value. The result obtained in the experimental group confirms the significance of differences in the distribution of schoolchildren in terms of communicative culture between the initial and final diagnostics (Tihonova & Vorozhbitova, 2016).

From the pedagogical perspective the formation a learner as a strong linguistic personality was investigated with respect to the function of Russian as a state language in the context of national-Russian bilingualism and multilingualism in a number of constituent entities of the Southern Federal District and the North-Caucasian Federal District formed in 2010. The outright novelty of the social linguocultural situation in the 2010s Russia consists in a non-declarative recognition of national-Russian bilingualism in the regions, parity of Russian and mother tongues as national languages and consequently in a certain redistribution of their functions in state government, office work, education, cultural life towards an increase in the share of a particular national language. But even in case the mother tongue functions only in the family, in informal communication or accompanies ethno-cultural traditions, one can observe an intensification of the necessity that all the representatives of a particular nationality should know it so as to preserve and strengthen their ethnic self-awareness. This requires an appropriate scientific methodological reshaping of the whole process of teaching languages within the framework of the proposed conception of continuous LR education with its bi(poly)linguistic modification.

4. Results

1. In the context of the revival, preservation and development of national languages, especially of those spoken by small national groups, the state of Russian as a state language and its stability play a significant role. Despite minor manifestations of nihilism in separate national republics, the overwhelming majority of the non-Russian population of the Southern and North Caucasian federal districts is susceptible to the Russian language, ready to study it which is proved by a high percentage of national-Russian bilingualism on that territory. At present, one can speak about the following stage of language reform in Russia which implies the necessity to further strengthen the position of the Russian language and fully implement language laws adopted in many national republics.

2. Language is one of the main components of an individual's national identity while language problems can become a major factor in fomenting ethnic strife. Accordingly, the language policy in the Russian Federation should be aimed not only at strengthening the positions of Russian, but also at the development of national languages as well as the creation of effective models of Russian-national and national-Russian bi- and/or poly-lingualism. A universal model of forming a bi(poly)linguistic communicative-cognitive culture based on the adequate principles is to be adjusted in each particular region with respect to its ethnic, cultural, linguistic and religious identity. The development of a balanced multilingualism requires sufficient financial resources, but it this approach that should become the leading factor of providing for the stable interethnic relations and prosperity of the state as a whole: no doubt the bilinguistic competence constitutes "a linguistic and cultural asset necessary for the reproduction and promotion of material and political capital" (Shezheva, 2003).

3. The 21st century language situation of multilingualism and multiculturalism in the Russian Federation where national languages perform a state function alongside with Russian as a language of interethnic communication requires a systemic continuous LR education in native, Russian and foreign languages so as to update the language policy in the sphere of the population's speech culture. The research into this problem confirms that in the Russian Federation's multinational regions the conception of continuous bi(poly) linguistic LR education can fully and systematically

solve the tasks of the Federal Target Program "Russian Language" for 2016–2020, concerning the "promotion of the effectiveness and accessibility of the system of learning the Russian language as native, non-native, and foreign; improving the conditions for the development of staff capacity and the methodological potential in the field of teaching Russian" (Federal'naya celevaya program" Russkij yazyk ", 2015).

4. Due to the inseparability of thinking and speaking, the methodological conception of linguistic rhetoric provides for the formation of the communicative-cognitive culture of a linguistic personality as a speaker of Russian and native languages of indigenous nationalities as well as migrants. The conception of continuous LR education is a theoretically and methodologically substantiated means for the effective formation of the linguistic personality's communicative-cognitive culture at different educational levels which include the system of upgrading the qualification of specialists belonging to various social groups while its bi-linguistic interpretation suits multinational regions. Moreover, from the theoretical standpoint of the "linguistics of language existence" (Gasparov, 1996), the multi-linguistic context confirms the validity of the scientific and methodological hierarchy: the formation of the learners' communicative competence must be in the focus of a teacher's attention; the dominant teaching method is to model different types of speech events and to enrich the learners' language memory with optimal rhetorical speech chunks in various modes, registers, forms, styles, types and speech genres.

5. The principles of designing the LR bi(poly)linguistic educational model for the national-Russian bilingualism are supposed to provide for the simultaneous process of forming Russian and foreign language substructures of the integral LR competence which results in the formation of bi(poly)linguistic communicative-cognitive culture of a linguistic personality.

The founding principles of the LR competence for the multinational regions are as follows:

1) The principle of harmonious development of the linguistic personality of a citizen in a multicultural region of the Russian Federation with respect to the mother tongue and the Russian language.

2) The principle of a learner's development as a strong linguistic personality of a dialogical, democratic, multicultural type on the bi(poly)linguistic basis.

3) The principle of cultivating linguistic loyalty as a degree of adherence to the mother tongue.

4) The principle of an interrelated rise in socio-cultural status of the mother tongue and Russian as a state language.

5) The principle of parallel and simultaneous formation of LR competence pertaining to the substructures of the mother tongue and Russian as well as foreign languages constituting the basis for bi-and polylinguistic communicative-cognitive culture of a personality.

6) The principle of coordinated sociocultural support for the process of developing a bi- and polylinguistic personality with the command of the native, Russian and foreign languages.

7) The principle of bi(poly)linguistic diagnostics and monitoring in the educational process.

The implementation of the suggested principles in the context of the continuity and succession of educational levels is meant to deliver the effectiveness of the process of forming the bi(poly)linguistic communicative-cognitive culture of the linguistic personality in the multinational Russian Federation (see Figure 3):

6. The logical strategic priority of educational policy at a new stage in the development of Russian society is the sociocultural model of "strong bi(poly)linguistic personality of a dialogic, democratic, multicultural type" which for the higher school level means a "professional bi(poly)linguistic personality". The components of this model include (1) a high degree of LR competence based on mixed and balanced bi(poly)lingualism in three (or more) languages: the mother tongue, Russian as a state language, an acquired foreign language; (2) the overall cultural, general professional and special erudition of extralinguistic nature (the form and content of ethically responsible communicative-cognitive activity); (3) the democratic strategy of dialogue between nationalities in the sociocultural communication as a dominant of interpersonal relations.

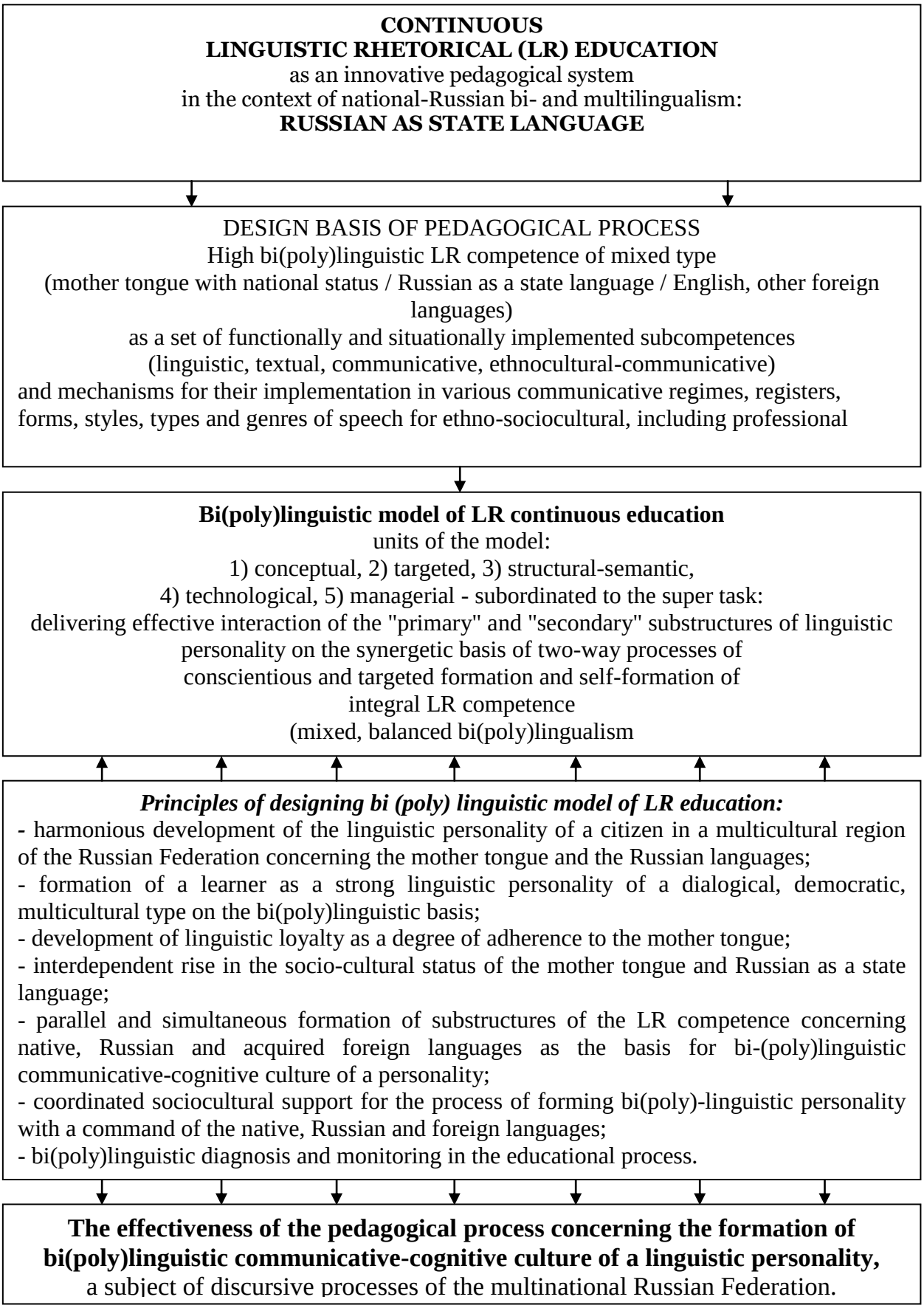

Fig. 3. Theoretical-methodological basis of bi(poly)linguistic model of continuous LR education in the context of national-Russian bilingualism and multilingualism.

The model of continuous LR education in its bi(poly)linguistic modification includes the following units: conceptual, targeted, structural-semantic, technological, administrative. In the course of their implementation, an effective interaction of the substructures of a learner's linguistic personality – "primary" and "secondary" – is supported on the synergetic basis of the oncoming processes of deliberate formation and self-formation of the integral LR competence of a mixed type. The substructures of the "secondary linguistic personality" may include two or more components with respect to the number of languages used by a subject of discursive processes in daily communication.

7. The development of the target unit in the bi(poly)linguistic model of instruction in the context of national-Russian bilingualism presupposes that the ultimate goal of the dynamic pedagogical process consists in the formation of the learner's readiness for an effective communicative-cognitive activity on the basis of the bi(poly)linguistic LR competence of a mixed type. This readiness is defined as a new psycholinguistic formation in the structure of linguistic personality of an integrative motivational-volitional, intellectual-perceptual, operational-actional nature serving as the foundation for the formation of a mixed bilingualism as a cognitive organization of an individual, which constitutes the basis of bi(poly) communicative-cognitive culture of a strong linguistic personality of a dialogical, democratic, multicultural type. The components of this readiness constituting sub-goals of the second level of the educational "goal tree" include: 1) *motivational-volitional* (LR orientation, "aspiration"); 2) *informational-semantic* and 3) *operational-actional* treated as a competence itself in the mother tongue and the Russian language, knowledge, skills and habits (LR orientation, "ability"); as well as 4) *empirical* (the accumulation of the experience of testing and self-correction of bi(poly)linguistic LR competence). The semantic-logical units of the LR educational system are isomorphic to the enumerated components. The "technological" facet of this readiness rests on the desired type of linguistic personality's cognitive organization, discussed above: *mixed, balanced bi(poly)lingualism*. The mixed type of bilingualism is simultaneous and balanced as well as co-ordinate, but not vice versa implying a good command of both languages with a switch of thinking processes to the language active at a particular moment (Timofeev & Vorozhbitova, 2014).

The dynamics of forming the necessary readiness in the unified interconnection of its components allows us to track the following criteria:

1) the motivational criterion presupposes the existence of a desire for speech self-perfection both in the mother tongue and in Russian as well as in a foreign language; the need for regular overcoming and preventing interference (direct and reverse), in the formation of balanced knowledge, skills and habits in all the languages;

2) the reflexive criterion concerns the learners' ability to resort to the criterion grid of the LR ideal so as to self-evaluate their qualities as a linguistic personality, the communicative qualities of their own speech, the available skills of communicative-cognitive activity in its monological and dialogical regimes, productive and receptive registers, oral and written forms;

3) the theoretical criterion consists in the knowledge of sources and mechanisms of interference and reverse interference; types of bi(poly)lingualism, methods of translation etc;

4) the practical criterion regards the readiness of the mechanism of bi(poly)lingualism, of the translation techniques and skills from the linguistic, textual and communicative aspects of the integral LR competence.

8. The LR basis for interdisciplinary integration of the educational process with attention to the universal processes and mechanisms of communicative-cognitive activity contributes to its effectiveness in any kind of educational syllabus: scientific, economical, etc. The system of continuous LR education is realized through a complex of successive educational syllabuses which include the regional component of bi(poly)linguistic training. This system concerns the following levels of LR education: preschool; general with primary, core secondary (complete) sublevels; professional with initial, secondary, higher (bachelor's, master's, postgraduate levels); doctoral, post-doctoral; optional (clubs, sections, courses, etc.).

In a multinational region, what is necessary is the integration of the structure of the linguistic personality's LR competence, his/her subcompetencies and mechanisms of their implementation into the educational process of studying both Russian as the state language and the mother tongue as well as foreign languages. The condition for the successful formation of LR competence of a Russian-language speaker in non-Russian students is similar to the work concerning their mother

tongue on the theoretical basis of bi(poly)linguistic approach. It allows to boil down the language interference and to enhance the effect of positive transfer.

9. For the Russian population of a polyethnic region, the formation of the communicative-cognitive culture in the monolingual context of the LR competence traditionally plays the central role underlying the study of foreign languages which is hampered by the lack of knowledge of the Russian literary language. However, the rise in the effectiveness of socio-cultural communication requires that the Russian-speaking population should study the languages of the indigenous population according to the principles set out above. In the areas of national-Russian bilingualism it is necessary to develop and test the interdisciplinary course "Basis of bi(poly)linguistic communicative-cognitive culture". It serves as a theoretical operational foundation for the formation of the willingness of a linguistic personality for a positive self-projection at different educational levels. This course is supposed to include an enhanced translation component that can be used as a leading means to optimize the process of perfecting all types of speech activity in Russian and other languages.

10. The bi(poly)linguistic model of the LR education provides a parallel process of building up the substructures of the linguistic personality – "primary" and "secondary" – according to the number of acquired languages. It is done on the basis of a complex formation of the integral LR competence of a mixed type, adequate and optimal formation at all educational levels of bi(poly)linguistic communicative-cognitive culture of a learner as an active and conscientious subject of actual (current) discursive processes in the Russian socio-cultural educational environment of the 21st century. An important aspect of linguistic building concerns the acquisition of the local national languages by the Russian-speaking population, the development of Russian-national bilingualism to avoid tension in national relations triggered by the unilateral approach to bilingualism.

5. Conclusion

The paper has outlined the problems of Russian as a state language functioning in the multinational regions of Russia and proposed a conception of continuous education as a means of optimizing the language policy.

The design basis of the innovative pedagogical process in the system of LR education is represented by a high level of bi(poly)linguistic LR competence of a mixed type: 1) the native national language; 2) Russian as a state language; 3) an acquired foreign language with this position being occupied by English. The formation of the integral LR competence rests on its bi(poly)linguistic components as a set of functionally and situationally actualized subcompetences and mechanisms for their implementation in various communicative regimes, registers, forms, styles, types and genres of speech for the ethno-socioculturally dependent communication sphere including vocational. The integral LR competence includes the following subcompetencies: linguistic, textual, communicative, ethno-communicative. They are implemented via the following mechanisms: orientational, inventive, dispositional, elocutionary, mnemonic, actional, editorial-reflective, psycho-rhetorical (feedback from the addressee). Differing from the coordinative type, mixed bilingualism maximally neutralizes the negative interaction between the linguistic units of two languages due to the unification of the conceptual system structuring the linguistic personality's cognitive level.

In the context of the national-Russian bilingualism the overarching goal of the discussed conception consists in bringing up a strong, professional linguistic personality as a subject of a multinational state by forming a learner's bi(poly)linguistic communicative-cognitive culture. Otherwise, as regional studies suggest, schoolchildren fail to master both the mother tongue and the Russian language.

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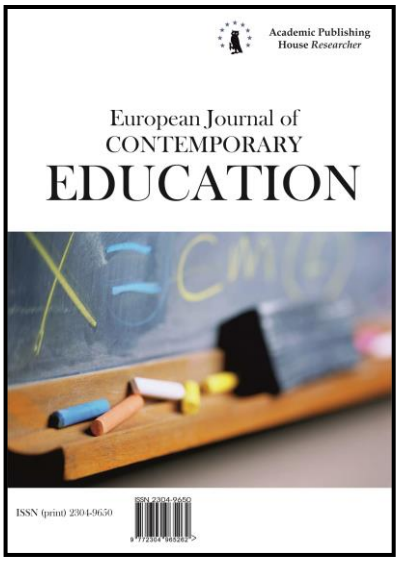

The History of Education

Teaching of History of 19th century Russia in the Visegrád Group Countries

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Abstract

The study focuses on the content and extent of teaching of Russian history, or history of Russian culture and civilization, in the teaching of history in the states of the Visegrád Group (i.e. in Hungary, the Czech Republic, Poland and Slovakia). In each of these states, the subject of history (sometimes in different names) has a different status, time subsidy, and content in the framework programs. The study therefore examines the extent to which content and performance standards – concerning the history of Russia in the 19th century – are set out in state educational programs (plans) and their presentation in selected secondary school textbooks. The author comes to the conclusion that the history textbooks in the states of Visegrád Group reflect the basic facts of Russian history of the 19th century, but it is evident that since the 1990s, more and more facts from general history have gradually disappeared in favour of national history. Research shows that the greatest space is devoted to Russian history in secondary school textbooks in the Czech Republic. It is noteworthy that the Polish textbook minimized Russian history at the most, although neutral observers would not have expected it because of the common fates of Poland and Russia. Although the history of 19th century Russia partly disappears from textbooks, on the other hand, history of the 20th century is much more represented, which corresponds to the development of international relations and the situation in Europe.

Keywords: History teaching, Teaching programmes, History of Russia, Absolutism, 19th Century, Hungary, Slovakia, Czech Republic, Poland.

1. Introduction

History teaching has in the Visegrád Group countries (Visegrád Four; i.e. Slovakia, the Czech Republic, Hungary and Poland) different position in the categorisation of subjects, in time subsidy

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as well as in its content. In Slovakia after the last reform of education system in 2008 teaching of history was minimalised by 50 per cent in time subsidy at the level of elementary schools, and by 75 per cent at the secondary vocational schools (at the grammar schools remained unchanged). So, today at the elementary schools (with 9 years of duration) history is taught for one teaching hour a week between the fifth and eighth level (at the ninth level there are two teaching hours) and at the secondary vocational schools (with 3 or 4 years of duration) there is also only one teaching hour (but only in the first year of study). Teaching of history in the neighbouring countries has more worthy status: on average it is two hours a week at the elementary and secondary schools (in Hungary and Poland it is even three hours a week in some years of study).

In Hungary subject of history is obligatory (not chosen) subject in the final state exams. Naturally, in the content of subject the national or state history dominates and general history – especially non-European – is presented in less detail. In the present study we focus on the comparison of teaching of the Russian history in a „long" 19th century in separate „national teachings of history ".

Russia became a European power during the 19th century, a strong player in the inter-war European system, despite many shattering events, including defeats in the Crimean War, in the Russo-Japanese War, or the negative impacts of the Berlin Congress. In addition to other significant events in Russian history, the historical facts and their interpretation obviously appear on the pages of the textbooks, especially when they penetrate into themes of national history. It is mainly the case of the Polish history, of course.

2. Materials and methods

In the process of writing this study we have used basic pedagogical documents, as well as selected textbooks from individual Central European countries. Because of the fact that it was not acceptable to select a larger number of titles for the purpose of our study, we have chosen those textbooks that are used most frequently, and this selection was based on the personal experience and contacts with teachers of history. Naturally, we had to take into account the fact that teachers are not only using the approved or recommended textbooks (by the Ministry of Education), but they often use those that are available or suitable for them. It should also be noted that the textbook's structure and content is not binding for the teacher. In Slovakia there are also teachers who do not use textbooks at all, but this is also result of the fact that more than a decade after the collapse of communism textbooks for the grammar schools were not published, and teachers were simply accustomed to teaching even without these didactic materials. We have focused on textbooks for the grammar schools (upper secondary education), because they provide the greatest space for interpretation, in contrast to textbooks for the elementary schools (lower secondary education), but also to most secondary vocational schools.

3. Discussion

The key issue of our study is the question to which extent – in the context of the content and performance standards given by the state educational programs and in the form of selected textbooks – the facts from the 19th century Russian history are presented and discussed. The aim is to compare and to find similarities and differences in the database of facts (events, dates, historical figures) and their interpretations in countries that are close to their geographic location – expressed in the term "Middle East Europe" – that are close to their historical fates (or common history), or similar in starting position of education after the collapse of Communist regimes. In the case of Poles, Czechs and Slovaks there is also the similarity of language, culture and – last but not least – cooperation within the so-called Visegrád Four group.

4. Results

In Slovakia the valid State Educational Program (ŠVP) states in the context of performance standards in the chapter with the title *The Modern Age and Birth of Nationalism* (for a four-year grammar schools[1]): the pupil knows/is able to define the social transformations in France from the fall of Bastille to the Vienna Congress, to evaluate the role of the Holy Alliance for Europe, to characterize the industrial revolution, to interpret the causes of the unification process in Germany and Italy, to recognize partial ideologies, and to analyse historical sources from the studied period. The content standards include: Great French Revolution, nation, nation state, Holy Alliance,

Russia, factory, entrepreneur, worker, spring of nations, conservatism, liberalism, nationalism, socialism. This base is further elaborated in textbooks and workbooks. In the Czech Republic, the National Institute for Education issued the Framework Educational Program (RVP pro základní; RVP pro gymnázia) in which the same theme is formulated in more detailed form than in the Slovak program. Among other topics there is the chapter *Rise of Russia as a Power*. In Hungary and Poland, it is possible to assume that thanks to the higher time subsidy Russian history is presented even in more detail, as we will explain in next paragraphs. Polish history education programs (Programy nauczania historii) should offer even greater space for teaching, as Russian-Polish history provides considerable material for this.

In the Slovak textbook of history for the 2nd level of the grammar schools (Bocková et al., 2013), Russia is mentioned first in connection with its role during the Napoleonic Wars (battle of Austerlitz, Napoleon's campaign in 1812, invasion of allied armies to France in the spring of 1814), during the Vienna Congress and the "Concert of the Great Powers", but is also mentioned at the beginning of the Slovak national movement. Authors are stating: "*After the battle of Slavkov, the Slovak population could personally meet the Russians. Part of the Russian army returned to Russia through the Slovak territory and Slovaks became aware of linguistic affinity with the Russians*" (Bocková et al., 2013: 42). Later Russian victories over Napoleon's troops had a strong influence on the emancipation of Slavic nations in Central Europe. Authors offered the greater space to the issue named *Ideology of Slavic Reciprocity* with its main protagonists Ján Kollár and Pavel Jozef Šafárik and their role in the Slovak National Movement. Reading of the sources (an excerpt from Kollár's text "*O literárnej vzájomnosti medzi kmeňmi a nárečiami slovanskými*" from 1837) is also one of the tasks: "*Explain with arguments why the position of Russia in Europe has been strengthened in that period*" (Bocková et al., 2013: 43). In the course of the next phases of the Slovak national movement, other Russian motifs appear sporadically. For example there is an excerpt from the travelogue of the Russian Slavophile Vasiliy Panov, written during his journeys in Central and Southeastern Europe between 1841 and 1843, with these formulated questions: "*In what period did Panov describe Slovaks? How did he assess the national question among Slovaks? Who were the Great Russians and Little Russians? What relationship did they [Slovaks] have with Russia?*" (Bocková et al., 2013: 49). A relatively laconic mention is given of the role of the Russian army in the defeat of the Hungarian Revolutionary Army in August 1849.

The historical development of Russia in the second half of the 19th century is elaborated in a separate chapter with a title *Transformations of Russia* in the range of seven pages. It contains the chronology from the Crimean War (1853–1856) to the reforms of P. Stolypin (1906–1911). The prologue of the chapter starts with these words: "*Russia was actively involved in the defeat of Emperor Napoleon. After the Vienna Congress it was one of Europe's influential powers. In agriculture and production the results were comparable to other powers and, in addition, Russia had the largest army. Engagement of Russia in the Holy Alliance brought the reputation of Europe's gendarme[2], successes in the war with Iran have made significant gains in the Caucasus, in the Transcaucasus and Central Asia.[3] With other war conflicts in Asia Russia conquered the territories in Far East*" (Bocková et al., 2013: 87). The authors later discuss in more detail the causes and consequences of the Crimean War, economic reforms and the abolition of serfdom, reforms of the state administration, the participation of Russia in the League of the Three Emperors, the anti-reform period during the reign of Alexander III and Nicholas II, Russia's position at the beginning of the 20th century, the Revolution of 1905 and Stolypin's reforms.

The subject is presented with more details in the Czech textbooks. One of the favourite textbooks for the secondary schools (although there were published newer ones[4]) is the textbook of Miroslav Hroch *Dějiny novověku – History of Modern Times* (Hroch, 1996), one of the most prominent Czech experts for the history of 19th century and especially on the issue of the formation of modern nations. In the chapter *Slow Process of Reforms in Russia* author has characterized the development of Russia since the death of Alexander I and the politics of the tsar Nicholas I, his measures in the field of education, science, secret police, persecution of the opposition; he also distinguished the streams of intelligentsia to Slavophiles and Westernizers). He wrote about the personality of tsar: "*He was a very hardworking and responsible monarch, but he blindly believed that he had a mission from God to build in Russia a well-functioning absolutistic state,*" and "*he considered any Western influences as harmful and Russian proponents of liberalism as criminals.*" (Hroch, 1996: 128). Tsar wanted to protect Russia from "western disease" by isolation.

Some Russian scholars have provided him with the ideological justification in the image of the Russian nation based on the ideas of three principles: the Orthodox faith, absolutism, and the Russian "nationality". The highest values should be devotion to the Orthodox tradition and to the tsar.[5] The author also analysed the issue of serfdom, the Crimean War, reforms of Alexander II, movement of *Narodnici*, foreign policy, the beginnings of the labour movement and political parties (Social democrats, Cadets, Esers – members of the Socialist Revolutionary Party) and finally the revolution of 1905 and its consequences. In the field of foreign policy, the author emphasized the Russian interests in Afghanistan and the Far East, and he finally stated: "Russian foreign policy has reached a number of successes after the Crimean War. The Russian domination of the Caucasus was strengthened, and the Russian troops successfully penetrated Central Asia and forced local rulers to recognize the sovereignty of the Russian tsar" (Hroch, 1996: 129).

An important part of the textbook is the selection of sources and excerpts from them, so that they can serve the author in a most effective way in relation to the interpretative and visual texts. Naturally, they have not only a demonstrative function, but are also a source for further work, for the development of independent thinking of pupils (Tišliar, 2016: 130). In this case, the author has inserted in the text of the chapter a passage from Alexander II's speech to the group of Moscow nobility in which had declared intention to abolish the serfdom, and the excerpt from Alexander II's letter to German emperor Wilhelm I from 1879 on current international political issues related to the Balkans. Further there are the open letter to tsar written by *Narodnici* from 1881, text of Fyodor Dostoyevsky on the mission of Russia in Asia (1881), and finally the petition of the labourers from January 22, 1905. Miroslav Hroch has not forgotten on the emphasis on national movements in the peripheral parts of the empire, which since 1905 have publicly formulated not only cultural but also political requirements for its ethnic territories (Estonians, Latvians, Lithuanians, Belarusians, Ukrainians, Finnish) and the government has slowly retreated from its Rusification policy.

Even this chapter has been concluded by the author in a colour-underlined text, which contains author's own view of the *Alternatives of Russian Development*. He briefly reviewed the possibilities of development in the context of economic growth. He has asked if the strengthening of capitalist enterprise opened up opportunities for overcoming Russia's backwardness and for transforming it into a modern superpower – or, if a non-revolutionary alternative to its modernization was even possible. He pointed to immense differences not only in the living standards, but also to the possibilities of applying fundamental human rights. He pointed to the surviving political oppression, which did not allow to resolve the contradictions of interest on the ground of political struggle. Therefore, according to Hroch, "*it cannot be clearly stated that the path of non-violent introduction of liberal and democratic reforms was a real alternative to solving the internal conflicts of tsarist Russia*" (Hroch, 1996: 132). Besides other roles of factual nature, the author also commissioned a task in which students would consider arguments for and against the viewpoint – whether for Russia in the second half of the 19th century the absolutism was the only condition for preserving its inner stability and external strength, and whether in such circumstances it was possible to achieve change.

The Czech textbook market has a wider scope also for publishing of alternative textbooks and summaries for graduation purposes of different subjects. One of these teaching materials is also the two-volume monograph *Dějiny evropské civilizace* (*The History of European Civilization*), written by a team of authors headed by Pavel Bělina. The book has only an explanatory text without other teaching components. In this textbook Petr Havel, an author of the chapter *Traditional Colonial Powers*, paid attention to the Russian expansion to the South and East. He defined it in intentions of the so-called Panslavism "*which propagated need of confrontation of races and religions, Slavs and Turks, Christians and Muslims*" (Dějiny evropské civilizace II, 1997: 159). He stated that in the 19th century the idea of a youthful power of the Slavs and the humanity of Orthodox Christianity was rooted in the Russians. This idea stood against the "rigid" Western culture, the "rotten" Islam and against the Asian powers at the south-eastern border of the Siberian regions.

Positive visions of Slavic ideals also appeared among the Slovaks in the Hungarian Kingdom. In this context, the interesting personality is the Evangelical/Lutheran priest and historian Ľudovít Haan from Békescsaba in present Hungary. He was a member of the Hungarian Academy of Sciences and author publishing mainly in Hungarian language. He was the opponent of the mainstream of the Slovak national movement led by Ľudovít Štúr, and the supporter of the double

Slovak-Hungarian identity. In his memoirs written in the 70s of the 19th century he – in the Herderian and Štúrian meaning – expressed his hope concerning the prospective future of the Slavs: "*It will come when the Slavic element fulfills its historical mission, because I am sure that such a mission is waiting for it. The 80 million people were not created by the will of God without aim. They have to play their part in world history. In the ancient times, a Greek element, and then in the Middle Ages Latin element, played a significant role, and now follows a Slavic element. When this latter gets old and plays out its role to the end, then the time will come – but not of nationalism – but the time of humanism through a Christian idea that integrates all peoples*" (Haan, 2006: 11). Haan has refused Hungarian chauvinism and Panslavism as well, but he filtered his publicly-presented attitudes through the social conventions. In terms of his formulated humanist views, he proposed an idealistic vision that in the future the importance of belonging to a specific nationality will cease to exist. If people "without confession" exist, in the future there may be an increase number of people who will not belong to any nationality. People will not "beat" each-other because of their language. He even foresaw that there will probably be one language worldly used that will unite human beings and from this fact there will be no more reasons for disputes and conflicts in the language (or national) issue.[6]

As the main enemy or obstacle for the economic growth of Russia, Petr Havel pointed the Ottoman Empire, especially in the context of the export of agricultural production from Ukraine through the Black Sea to the Mediterranean. Russian interests crossed with the Ottoman as well as with the interests of the smaller Islamic states in Central Asia. According to Havel by "the protection of the Slavic population" Russia demonstrated to itself and to the world the legitimacy of its imperial expansion and masked the purely imperial interests. So Russia has been misusing the Orthodox faith of majority of the Balkan population and was trying to penetrate into the Mediterranean through this territory. Russian activities encountered competition in the interests of the United Kingdom, particularly in Afghanistan, Transcaucasus, and Egypt, and interests of the Austria-Hungarian Empire, Germany and Italy in the Balkans (Dějiny evropské civilizace II, 1997: 159).

In the next section entitled *Preservation of the Traditional System* Havel characterized Russia from an economic, social and political point of view. He described the state of agriculture, in which even after the abolition of serfdom the land ownership persisted in the hands of large landlords. Up to two-thirds of the 21 million of poor farmers were looking for a land or other kind of livelihood, and even the slow-growing industry in the cities did not have enough labour to offer. He also said: "*In the Russian economy relatively large-scale state orders and foreign capital (railway construction, mining development, etc.) were still largely applied, but the economic development was hampered by Russia's overall backwardness and the enormous degree of corruption of state officials*" (Dějiny evropské civilizace II, 1997: 175). According to Havel, the impossibility of economic growth of absolutistic system and the political oppression of government institutions caused the growth of political radicalism whose leaders wanted to push social change through the propagation of revolutionary slogans as well as through the individual terrorism. He described the radical political scene – represented by names such as Bakunin, Nechayev, Lavrov, Herzen, Plechanov, Zasulitschova, he mentioned the culmination of terrorism in the assassinations of General D. Trepov, Chief of Police in Sankt Petersburg, and the tsar Alexander II. Describing the rule of his follower Alexander III he reported on the spread of anti-Jewish sentiments in the country, which culminated in pogroms that literally expelled Russian Jews from the empire (especially to the USA and Palestine). The unsustainability of the regime were also confirmed by the course and end of the Russo-Japanese War, the Massacre on Bloody Sunday, the personality of Gapon, the Revolution of 1905-1907 and its consequences. In a negative connotation he wrote about Stolypin's successor in the office Wladimir Kokovcev as an opponent of any concessions. At the end Havel stated: "*The outbreak of the First World War revealed very quickly the political and economic weakness of the tsarist absolutism*" (Dějiny evropské civilizace II, 1997: 177). Naturally, certain Russian realities appear in teaching materials, where it is necessary – in connection with the development in the Balkans, the emergence of a Dual Alliance, then Triple Alliance, and finally with an account of Russia's economic situation on the eve of the I World War. In the chapter *The Way to the War*, written by Jiří Fidler, there is an emphasis on France's "huge" investment into the Russian economy, which has greatly revived the economic life of the empire, so the Russian industrial production has witnessed dynamic growth. According to Fidler: "*The system of absolutism was transformed into state capitalism, the state owned all the mineral wealth, most*

of the transport infrastructure, and part of the industry, it was also engaged in agriculture. Actually, the state controlled banks and the entire financial system, and by the means of state commissions and loans also the rest of the industry and trade" (Dějiny evropské civilizace II, 1997: 184). The author also highlighted the growth of Russia's military force – compared to the state of army of the times of the Russo-Japanese War and the subsequent Revolution.

In the most recent history textbook for the 8th level of elementary schools after the Napoleonic War period presents Russian realms in the chapter *Eastern Europe and the Balkans*, focusing on three key themes: Russian interests in the Balkans, the rebellion of the Decembrists and the Polish uprisings. There are a number of questions concerning the shorter explanatory text (for example: Why was Russia concerned with the Balkans?; What was the relationship between Russia and Poland after the Vienna Congress?; Why were the uprisings in Poland?; What were their consequences?; What interests had Russia on the Balkan peninsula?). Then it follows the curriculum about the Ottoman Empire and its confrontation with Russia (Válková, 2016: 78-79). In more detail, it describes Russian realities in the second half of the 19th century, from the Crimean War to the revolution of 1905. The text is reflected but also limited by the questions: "*How did the relations between Russia and Austria change after the Crimean War? Why did Russia try to penetrate the Balkans? Repeat when the serfdom in the Habsburg monarchy was abolished. How many years later was the serfdom cancelled in Russia?*[7] *How much is it according to human generations? Why was Alexander II assassinated? What did the assassin promise? What kind of change did it bring? What was the cause of the Russo-Japanese war and how did it end? What were the consequences of the Russo-Japanese war?*" (Válková, 2016: 115).

In Hungary, the Research, Education and Development Institute (*Oktatás Kutató és Fejlesztő Intézet*) is responsible for the valid educational program. On its internet pages the programs for individual subjects according to different types of schools are published. Teaching schedules (*Történelem kerettanterv*) of the official subject with name "history, social and civic knowledge" (*Történelem, társadalmi és állampolgári ismeretek*) are designated by the types of elementary schools, grammar schools, secondary vocational schools and schools for pupils with special education needs (Oktatáskutató). The key role have the framework programs for elementary schools (1st - 4th, 5th - 8th year of study), grammar schools (9th - 12th, 7th - 12th and 5th - 12th level) and vocational schools (9th - 12th level), which are always presented for two-year cycles. The educational standards of the subject under our review are comparable and show only minimal differences. The history of the second half of the 19th century is part of the thematic unit *National State and the beginnings of imperial policy* (ranging from 14 to 16 lessons).

Pedagogically binding document always introduces a thematic unit with a range of lessons, further specifies the previous knowledge, educational and developing goals, then the individual topics follow which indicate the educational standards and cross-curricular relations in separate columns. Further within the educational standards there are interpretations of key terms, key concepts defining content standards, followed by 1) personalities, 2) topography (specific locations), and 3) chronology. Finally there are given the expected results. For example in the plan for the 9th and 10th level of the grammar schools there are personalities: Napoleon III, Garibaldi, Cavour, Bismarck, Wilhelm I, Lincoln, Haynau, Alexander Bach, Ferenc Deák, Gyula Andrássy, József Eötvös, Emánuel Löw, Rotschild, Ábrahám Ganz (there is no Russian). In the topography there are mentioned: Piedmont, Solferino, Italy, Königgrätz (Hradec Králové), German Empire, United States of America, Alsace-Lorraine, Sedan, Arad, Austria-Hungary (Osztrák-Magyar Monarchia). In the chronology: 1853–1856 (Crimean War), 1859 (Battle of Solferino), 1861 (the emergence of Italy), 1861–1865 (civil war in the United States), 1866 (battle at Hradec Králové), 1871 (the rise of the German Empire), October 6 1849 (execution of the "national martyrs" in Arad), 1850–1859 (Bach's era), 1865 (Ferenc Deák's *Easter article*), 1867 (Hungarian-Austrian political settlement, Franz Joseph's coronation) 1868 (*National Law*, Croatian-Hungarian political settlement). From this it is clear that for a given period the national history dominates, and in the context of general history data concerning Russia are missing.

But they have found space in textbooks. The theme is chronologically extended to the 11th level, where these historical personalities are given: Ford, Rotschild, Wilhelm II, Queen Victoria, Pope Leo XIII, Teodor (Tivadar) Herz and Lenin (in the cross-curricular relations among the representatives of French literature as Hugo, Apollinaire, Baudelaire, Rimbaud there are also two Russians – Dostoevsky and Leo Tolstoy). The topography includes the Balkans, Serbia, Strait of

Suez, Japan. Chronology contains the following data: 1873 (The League of the Three Emperors), 1878 (Peace in San Stefano, Berlin Congress, Occupation of Bosnia and Herzegovina), 1882 (formation of the Triple Alliance), 1896 (first modern Olympic games), 1907 (formation of the Triple Entente), 1912–1913 (Balkan wars). In the framework program for vocational schools (9th – 12th levels) the standards are essentially overlapping – only a few notions, names, terms are absent. In the programs the facts of Russian history are not clearly mentioned within the thematic unit (with the exception of the Crimean War and Lenin), but they are implicitly present in various themes (the suppression of the revolution in Hungary, the situation in the Balkans, etc.).

Our selected textbook History 11 for the grammar schools (*Történelem 11 gimnáziumokban*) was written by Miklós Száray (Száray, 2011). It consists of five thematic units and the following are the main topics of the general history: *1. Period of Enlightenment (1714–1849)* and *4. Period of National States and Empire (1849 – 1914)*. In the first of these, Russian history fills the subchapter with title *Russia's Penetration*. It is reflecting the government of Catherine II, her efforts to conquer Poland and spread the Russian territory southwards to the areas controlled by the weak Ottoman Empire. The text is supplemented by maps, the English caricature of the tsarina, the allegorical picture of the division of Poland and the excerpts from the Catherine II's *Manifesto* from 1772. The depiction of Russian history is presented in the chapter "Government and the fall of Napoleon" (supplemented by the visual sources: painting *Retreat of the Great Army in Russia*, maps and excerpts from the book written by Ségur about the Moscow campaign in 1812). In the curriculum about the European revolutions in 1848 – 1849, the author made a note: "*The peoples of Russia and the Ottoman Empire did not revolt. The power of tsar maintain firm due to the undevelopedness of Russia. That is why Nicholas I had the opportunity to play the role of the European gendarme*" (Száray, 2011: 75). Within the chapter in the special section *Opinions regarding the Slavic Congress in Prague* he stated (and did not avoid generalization) that Slavic nations were far from union. The Poles wanted to regain their independence and therefore stood up against Russia, while the smaller Slavic nations – in the sense of Slavic reciprocity – considered Russia as their patron. In the interpretation of the Hungarian Revolution Száray mentioned the request of Emperor Franz Joseph I, addressed to Nicholas I. It contained the plea for the help against the Hungarian revolutionary movement. Russian tsar – according the goals of the Holy Alliance and from the fear that the Revolution could spread to Poland – provided military assistance in the strength of up to 200,000 men. Undoubtedly, the fear and concern of the tsar was strengthened by the apparent Polish military participation in the Hungarian army, where the highest command posts were held by the Polish Generals Józef Bem and Henryk Dembiński. The last commander of the Revolutionary Army General Artur Görgey surrendered to the Russian army on August 13, 1849, in the village of Világos (today Şiria in Romania). He decided to surrender this way due to the fear of Austrian command – on the other hand Russian military command promised a lenient approach

Part of the 4th thematic unit is the subchapter *Pressure on Russia*, in which the author focused mainly on the events of the Crimean War and the attitude of the Habsburg Empire and the Western Powers to Russia. In the following section, the consequences of Russian defeat, reforms, and regulations which opened the way for capitalist development were discussed. The author did not forget to mention the outbreak of the Warsaw Revolt (1863), which was bloody suppressed by the Russian army. He stressed the growing oppression of the Polish nation: "*The Polish language was expelled from schools and from the Catholic Church, which symbolized the unity of the Poles; they closed the monasteries and took their land*" (Száray, 2011: 170). From the text sources, the interpretation is supplemented by excerpts from the Paris Peace Treaty (1856) and from the abolition of serfdom (1861), during the reign of Alexander II. The Russian history was subsequently reflected in the subchapter *Russian expansion in Asia*. Száray sees the main motivation for Russian expansion in Central Asia in Russia's attempt to restore its international authority after defeat in the Crimean War. He also spoke of a crash with British interests in Afghanistan, the penetration of Russians into China, the acquisition of Vladivostok (1860), the construction of the Trans-Siberian railway, the collision of interests with Japan in Manchuria, leading to the Russo-Japanese war and the "legitimate" Russian defeat. The Russian issue is also focused via selection of sources: from Bismarck's memories of the founding of the League of the Three Emperors, from the articles of the Dual Alliance, from the articles of the Russian-French Treaty (1893), from the Russian-British Agreement (1907), as well as from the statement of the Hungarian Labour leader Leo Frankel about

the "liberation mission" of Russia in the Balkans in favour of its "Christian brothers". Frankel expressed his clear attitude: "*But what is Russia's real intention? Has anyone ever seen that the tyrannical government have started a liberating war for some other nation? Is it possible to believe that such a government as the Russian in Poland, which has allowed the assassination of thousands of people, would support the fighting of other peoples or nations against tyranny?*" – This question was supplemented by another: "*How can his assessment differ from that of then Hungarian people?*" (Száray, 2011: 205). Within the framework of the chapter on the beginning of social, national and power conflicts, the author dealt in more detail with the Bolshevism and the Russian Revolution in 1905, presenting only two historical figures: Nicholas II and Lenin. The selection from the sources also includes excerpts from Bakunin's *Scientific Anarchism*, Lenin's work *What To Do?* and *Two Tactics of Social Democracy in a Democratic Revolution*, the expression of Danish writer Georges Brandes about the brutal national oppression of Poles (with an obvious emotional background) and the request of Pop Gapon.

The older textbook of Géza Závodszky, used in the 1990s, dealt with the subject in somewhat broader contours (Závodszky, 1994). For example in connection with the Crimean War there is a mention of the important role of the former general of the Hungarian Revolutionary Army, who had the Slovak origin, Juraj Kmeti (György Kmety). He was the commander of the Turkish army under the name Ismail Pasha on the Caucasus Front, and the author expressed that: "*He had attracted European admiration by defending the fort of Kars*" and "*the Sultan had minted commemorative coins to his honour*" (Závodszky, 1994: 169). Author also explains the so-called eastern question in the Balkans, the Russian oppression of the Lithuanians, Poles and Ukrainians (with the excerpt of the Minister of Interior's decree on the prohibition of books in Ukrainian, 1863). It is interesting to note that while unambiguously condemning the national oppression in Russia, in comparison with the Hungarian oppression of the non-Hungarian nationalities the author's addition of the term "mild" is actually downplaying.

In Polish curriculum programs (Programy nauczania historii) content and performance standards are listed in the thematic unit, divided into individual themes. For example the theme of January uprising in 1863 contains these content standards: events after the outbreak of the uprising, Rusification and Germanization. As for the education standards, it contains: the pupil can define important events of the January uprising, he/she can find a list of goals in the fight against insurgents, and examples of repression against the population after the defeat of the rebellion. He/she should also explain the consequences of the defeat and struggle for teaching in a Polish language. Of course, important thing is how these educational aims are presented in the textbooks and other methodical materials.

We chose a secondary school textbook called History 2 with the subtitle Modern Times (*Historia 2. Czasy nowożytne*), written by a team of authors. It is still published and used (Burdaet al., 2003) and it contains the curriculum in chronological frame spanning from the 16th century to the 1st World War. The first mentions of Russian or Russian-Polish history relating to the 19th century are the Napoleonic Wars, the Vienna Congress, and the formation of the Holy Alliance. Particular attention is paid to the Warsaw Principality and Polish Legions in the Napoleonic Army[8], another chapter contains the mention of an establishment of the Polish Kingdom which was united with Russia.

The chapter about the *Polish National Liberation Revolts* represents the most important events of the Polish-Russian conflicts in the 19th century (1831–1864). This curriculum is presented in a rather detailed explanatory textbook with rich visual material (mainly maps), taking into account everyday life and culture until the revolution of 1905. Among its results were release of oppression, formation of the cultural organizations and lower Polish schools with teaching in the mother language. The text of the textbook allows pupils to compare the Rusification in the Russian part of Poland with the Germanisation in the in Prussian (German) part, while the interpretation itself can be evaluated as essentially neutral and without emotional elements (Burda et al., 2003: 383-386).

Surprisingly, textbook does not contain a special chapter characterizing the development of Russia in the second half of the 19th century. Russian history is explained in the Polish-Russian context, except for a few exceptions in the range of a few paragraphs. They reflect the Russian disasters in Asia, problem in the Balkans, changes in Russia's international status (formation of the Dual Alliance), the development towards the revolution of 1905 and the Russo-Japanese War.

The subject, even in direct connection with the national oppression of the Poles, is given in a more or less unemotional tone. Definitely, text is not as emotional as it was common in the Polish textbooks published before the Second World War. At that time, the crimes, various ways of reprisal, prison and death sentences, expulsion to Siberia, confiscation of property, persecution of the Catholic Church, and violent Rusification were highlighted in the textbooks. The personalities of the Russian state were characterized as explicitly negative, for example the Grand Duke Konstantin was described with such epithets as a cruel and moody man, violent and bloodthirsty despot. The representatives of the military apparatus – like Generals Paskievich and Dybich – were evaluated not from the military point of view but as the murderers (Sanojca, 2003: 91-95, 102-103).

In other Polish textbooks, Russian history is also presented in separate chapters or subchapters, which, of course, is related to the author's layout of the teaching material. For example in the textbook of Halina Tomalska for the secondary vocational schools (Tomalska, 1996), Russian history is explicitly mentioned in the names of chapters as *The Balkan regions and Russia in the years 1815-1830*, *The Polish-Russian war and the end of the uprising*, *Russia at the turn of the 19th and 20th centuries*. Other facts are included in the chapters with description of the Russian-Polish relations. The extensive chapters on Russia can be found in a secondary school textbook written by Waldemar Łazuga (Łazuga, 1996), for example the chapter with a short title *Russia* in which the author dealt with the Russian history from the Vienna Congress to the Crimean War. The selection of personalities is represented by the following names: Alexander I, Aleksey Arakcheyev, Nicholas I, Pavel Pestel, Peter Chaadayev, Aksakov brothers, Vissarion Belinsky, Ivan Turgenev, Michail Dostoyevsky, Alexander II. The list is much wider than in the newer textbooks, not to mention the state education programs.

5. Conclusion

In the process of teaching history, it is very important to find a fair and realistic balance between acquiring historical knowledge, developing the ability to critically analyse, interpret and evaluate historical sources, and finally developing a sense for history. In this aims, textbooks have an irreplaceable role. Undoubtedly, the textbooks of the countries united in the Visegrád Group reflect the basic fact of Russian history of the 19th century, but it is clear that number of facts concerning the general history is gradually decreasing since the 1990s. It is clear that this decrease is making a place for the facts from national history. Supporting of common European history teaching, remarkable in the 1990s and first years of 21st century, is no longer preferred. Historians agree that, in principle, no universal model of European history can be applied, model which would be absolutely acceptable to all European countries because it would not take into account the different historical experience and mentality of the populations in various countries. The failures of a joint French-German or Hungarian-Slovak history textbooks are the examples of this attempt. The content of Russian history basically corresponds to the time subsidy and content standards in an increasing trend to boost the share of national history. The greatest space devoted to Russian history is in the secondary school history textbooks in the Czech Republic. Interestingly, the Polish textbook *Historia 2* minimized Russian history, what could be seen as the result of the common fates of Poland and Russia in the Modern period. Although the history of Russia in the 19th century partly disappears from textbooks, on the other hand, in the history of the 20th century is much more represented, which corresponds to the development of international relations and the situation in Europe.

Notes

[1] These grammar schools represent institutions in which the history of Slovakia has a fairly wide space in the form of 2 hours a week for three school years, and with the possibility of an optional seminar on history (2 hours a week for one or two years).

[2] In the Czech monograph *Dějiny Ruska (History of Russia)*, written by a team of authors, this fact is commented: *"For its role as "the gendarme of Europe," the Russian Empire was not brought by the differences in civilization, culture or ideology of Russia and Europe, but by the fact that since the end of the 18th century European development has permanently endangered the foundations of its existence. But it was true also in the opposite way"* (Švankmajer et al., 1995: 244).

[3] In the subsequent text of a textbook (Bocková et al., 2013: 87-92) to the border regions of Russia – for example Caucasus, Transcaucasia, Middle Asia and so on – no space is given. These

regions were conquerred by Russia during the 19th century and from the historical point of view very interesting is the conquest of multiethnic and multicultural Caucasus region (the newest outputs of research are remarkable – see for example: Cherkasov et al., 2014).

[4] We mean the newest textbooks from 2013–2016 (Hroch, Ulvr, 2013; Bolom-Kotari et al., 2016; Čornej et al., 2016). Facts in textbooks do not differ significantly; some differences are in the range of content. The textbook very rich in details is *Dějepis 19. století pro střední školy*, which is designed above the standard framework program (Russian history is presented in chapters: *Rusko a východná Európa v prvej polovici 19. storočia* and *Východná Európa a Balkán od 50. rokov 19. storočia*) (Bolom-Kotari et al., 2016: 61-63, 98-100). But it is disputable, for example, whether it is useful for the Czech students to know the nine names of the Russian Slavophiles and Westernizers.

[5] In this area this was reflected in the reforms of Russian education in the second half of the 19th century (see: Cherkasov, Smigeľ, 2016: 420-422).

[6] Ľ. Haan wrote: *"The better the means of transport will be created and improved – which in my opinion will lead to travel in the air – the more obstacles formed by mountains, rivers among the countries and nations will disappear. Nationalism also disappears and global humanism starts to dominate. If today it seems strange to us that people have had murderous wars against each other due to different religions, our grandchildren will laugh for our reverie about nationality, for which we have hated each other and for which we have turned against each other. These times, of course, come very late, after many centuries"* (Haan, 2006: 11).

[7] It is necessary to add that together with abolition of serfdom in Russia (in 1861; but in some distant parts of Empire only in 1917) the slavery was also cancelled in the conquered region of Caucasus – it started in the Caucasian territory of the Black Sea coast after the end of the Caucasian war in 1864 (Smigeľ, Cherkasov, 2016: 1191-1192).

[8] Slovaks and other Slavs among the prisoners of the Austrian army were also recruited to the army. In Slovakia Ján Ignaty from Klenovec is famous warrior, who entered Napoleonic Army in 1808 and wrote in his interesting memoires about his military activities in Spain.

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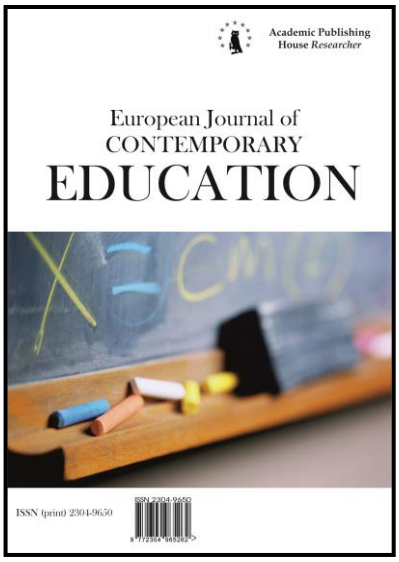

Emancipation in Educational System: Formation of Women's Higher Education in Russia

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Abstract

The focus of the article is on one of the turning points in the education development in Russia of the late imperial period, i.e., the establishment of women's higher education in the second half of the 19th century. The researchers involved various sources, including periodicals, ego-documents, documents of management and record keeping obtained from regional archives, regulatory documents and directories for a systematic study of the formation process of women's higher education against the backdrop of the socio-political life of the Russian empire going through modernization. The combination of macro- and micro approaches in the context of the theory of modernization and gender-based history made it possible to consider the first women's higher courses as one of the most outstanding achievements made by the progressive public in the struggle for the equality of women as well as the development of women's education. The subject of the study was the women's higher courses, opened in the capital cities (Moscow and St. Petersburg) as well as provincial ones (Kazan and Kiev). The issues under study, being covered in the article, are the ones related to the socio-cultural aspects of the Russian movement for the right to obtain higher education and pedagogical profession up to the beginning of the 20th century. It is shown that Russian women in the struggle for equality with men initially demanded equal rights in the field of education in order to gain the opportunity to expand their professional activities and, consequently, to use their abilities for the benefit of society and achieve economic independence. Instability and constant attack on women's higher courses by the government, concerned about the growth of the revolutionary movement among women and inability to exercise their rights prevented students of women's higher courses from becoming full-fledged students, while the

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degree they got after graduating from the courses failed to provide them with equal civil and political rights with men. The results of the research can be applied in the practice of modernization of higher education and in studies on the history of Russian education.

Keywords: education, higher education, women's education, women's higher courses, Russian empire, St. Petersburg, Moscow, Kazan, Kiev.

1. Introduction

The study of various aspects of the issue of the formation and development of education in Russia has been one of the most urgent issues of the latest Russian historiography. Such degree of interest is due to the complex current situation in Russia and the ongoing reforms in connection with the transition to a whole new level of requirements for higher education. The success of solving these problems depends largely on the quality and direction of education, its aim being to help young people find their place in society and succeed in their chosen field of professional activity. Of particular relevance for modern education is also the study of the historical patterns of the formation of women's higher education in connection with the increasing role of women in modern society, especially in the issue of upbringing of the younger generation.

To date, the number of women employed in education is growing, and that of men, on the contrary, is declining. The feminization of education, which began at the turn of the 19th and 20th centuries, has been going on to this day. Women's higher courses occupied the niche of higher education, thus meeting the needs of those who could not be admitted by state higher educational institutions, in terms of training teachers to work at women's secondary schools. In this regard, it is the scientific and practical importance of studying the experience of the development of women's higher education in the late 19th century, including in the territory of the Russian province, that is growing.

2. Materials and methods

2.1. The use of various sources allowed to consider different aspects of the issue under study. A significant research base was made up of various groups of records, published or kept in archives. They include documents characterizing the activities of the authorities in the field of education, as well as an array of information on the functioning of educational institutions and the organization of their educational process. The legal and regulatory documents specified the legal status of women's higher courses, students, teachers and graduates, showed the dynamics of changing their status, as well as defined government policies in the field of women's education.

Reference books allowed to build a presentational picture of the educational institutions network and provide their structural and functional characteristics. Russian periodicals revealed a number of pressing problems in the process of the formation of women's higher education, public discussion concerning women's school, showed its achievements and development difficulties. Ego-documents made it possible to consider representations by various subjects and groups of women's education, as well as get a better understanding of the individual appearance of the school.

2.2. The subject matter of the article allowed the authors to combine techniques of macro and micro approaches. The system approach and structural-functional analysis made it possible to break up and link the processes of emancipation and formation of women's higher education, as well as reveal their mutual dependence on the political, social and economic realities of the late imperial Russia that predetermined these processes. Meanwhile, periodic focus on particular educational institutions in micro perspective made it possible to understand the features of the perception of female education by different layers of Russian society and the specifics of school life both in and out of the capital. Biographical reconstructions enhanced the individualization of this understanding at the micro level and the awareness of political practices at the macro level.

The formation of women's higher education is seen as an element of modernization, acting in female education as a varied and ramified process, initially of the westernization type, and then increasingly acquiring alternative national features. The historical evolution of women's higher education is also studied in the perspective of gender-based methodology, which involves examining changes in public opinion on the issues of women's education and the cultural role of women, reconstruction of the evolution of Russian realities caused by emancipation in the

educational sphere, examination of various forms of interaction and complementarity of men's and women's education.

3. Discussion of the issue

The issue of women's higher education was being actively developed by researchers in the second half of the 19th – early 20th century. The most interesting section of the historiography of the issue is made up of the works of Russian (Ovtsyn, 1887; Derevitskiy, 1902; Pokrovskaya, 1906; Mizhuev, 1906; Margolin, 1915) and foreign (Mill, 1878) authors, who covered various aspects of the demand, problems and prospects for the development of women's higher education at the end of the 19th century, as well as mentioned the achievements made by women in the field of education. J.S. Mill noted synchronicity in the development of women's demand for higher education and the formation of educational systems in Russia. The reasons for the temporary delay in the further development of women's education were, according to the Russian authors, connected with the reactionary domestic policy of the government, including that in the field of education. Nevertheless, all their works had a pronounced journalistic character. This is due to the fact that the authors of these works had a limited number of sources at their disposal and were mainly guided by political goals while writing. Quite a few of their assessments and conclusions are actually significantly outdated. In the first decades, Soviet historical science, due to inattention and even a negative perception of the Russian feminism history issues, practically withdrew from studying this issue, using it just as a means of emphasizing the conservative educational policy of czarism. Changes in the ideological atmosphere of the second half of the 20th century contributed to the revival of such studies, whereas the prevalence of women among the researchers of the history of women's education is becoming quite noticeable. The "women's issue" still remains one of the main themes of Russian and foreign historiography (Johnson, 1987), but the focus of Russian specialists has shifted towards studying particular higher educational institutions for women, special attention being paid to The St. Petersburg Bestuzhevskiye Courses (Valk, 1965; Fedosova, 1980).

Modern Russian historiography, being freed from the constraints of Soviet ideology, is characterized by the growing popularity of female and gender studies. The formation of women's higher education is being considered as the first stage of the struggle for emancipation, attempts have been made to show the systemic history of women's schools, the number of studies on the regional aspects of the topic is growing (Perova, 2007; Ponomareva, Khoroshilova, 2008; Kornilova, 2012; Cherkasov, Smigel, 2016; Kornilova et al., 2016; Shevchenko et al., 2016; Taran et al., 2016).

4. Results

The struggle of women to obtain equal rights in education began and developed within the framework of the activation of women's emancipation in the 2nd half of the 19th century. As for men, obtaining higher education for them was limited by scarceness of higher education institutions, class barriers or financial conditions. As for women in Russia, they were legally deprived of the right to study at a university.

In Russia, the idea of establishing a higher educational institution for women came up in the late 1860s. It was originated within a group of women, gathering at that time around M.V. Trubnikova and N.V. Stasova (Zinchenko, 1901: 26) who had organized the first Russian women's artel to publish translated works. The main impetus for this idea was the fact that women, as having been unable to obtain higher education in Russia, rushed to universities abroad and sought the right to study, often at the cost of significant moral and material sacrifices and deprivations. The development of women's education was considered by "that constantly increasing part of Russian society" in the context of spreading and deepening of higher education as "one of the surest ways to a better future" (Pervoe dvadtsatipyatiletie, 1903: 894).

The easiest way to meet the demand for higher female education in Russian society would have been to open doors for women to university audiences. Indeed, in the early 1860s, just for a while, women were allowed to enter universities.

When compiling the university statute of 1863, the issue of female higher education was debated by the government for a long time. Minister of Education A.V. Golovnin had a circular survey of universities concerning this subject. All of them, except for the Moscow and Dorpat

Universities, spoke in favor of admitting women to university lectures and for granting them the right to seek academic degrees (Zamechaniya, 1862).

It should be noted that the Moscow professors, while giving a negative answer, justified it only with a speculation that men and women's co-education might have a harmful effect on the successful course of studies. The Kharkov and Kiev professors even expressed their readiness to accept women not only as noncredit students, but also as credit students, moreover, they suggested that women should be equalized with men in the right to receive academic degrees (Svatikov, 1916: 2). And the St. Petersburg University council found that the admission of women to higher educational institutions was hampered by the only one obstacle, namely, the novelty of the phenomenon and historical habit of the opposite order of things (Zamechaniya, 1862: 521-523).

The Kazan professors "found it possible to admit female students to university lectures as noncredit students. Concerning the acquisition of higher degrees by female noncredit students, the existing rules applied to noncredit students should be followed in this case, and those women who have passed the degree examination should be provided with all the rights associated with these degrees" (Zamechaniya, 1862: 525).

It was under the influence of the opinions of the professors' councils that a note was added to §100 of the new university statute draft (1863), permitting admission of women to universities provided they have passed specific tests.

The fate of the whole higher education system was determined by a random fact: at the end of 1861, among those who were arrested during student riots there was a woman attending a university. Therefore, the commission that was considering the final statute, turned the note down. Upon the introduction of the university statute of 1863, the issue of female higher education was silenced even in the press, so Russian women had nothing left but to escape abroad. In Western Europe, a considerable share of students were Russian, especially in universities in Paris, Geneva, Zurich and Bern (Ovtsyn, 1887: 41).

It was then when a group of advanced women, led by M.V. Trubnikova, N.V. Stasova, A.P. Filosofova, E.N. Voronina, as well as A.N. Beketov, as a member of the university commission, filed a number of petitions for the organization of higher education for women. First, they submitted a request to the rector of the St. Petersburg University to arrange lectures for women given by the university professors in their free time.

The rector had to apply to the Minister of Education for permission. However, D.A. Tolstoy then resolutely refused, pointing out that at the moment it was impossible to allow mere private lectures by the university professors. But at the end of 1869, after lengthy negotiations he agreed to public lectures readings by the university professors for people of both sexes on the basis of existing decrees on public lectures, rather than special women's courses. In fact, he agreed to this solely because, in view of the impossibility of obtaining university education in Russia, in the early 1870s, to obtain this, quite a few women went abroad, namely, to Switzerland, where they easily fell under the influence of socialist and anarchist propaganda to sheer displeasure of the government.

Therefore, it was the "protective" point of view that made it desirable to provide women with at least some opportunity to obtain higher or professional education at home. By 1875, the number of listeners of the Vladimirskiye evening courses for each subject amounted up to 40 people (Ovtsyn, 1887: 34). Both the Lubyanskiye women's courses, being quite famous, that were opened earlier – in 1868–1869 (in 1880 they were awarded the higher courses status) and the Alarchinskiye courses in St. Petersburg had teaching plans that copied the ones of men's gymnasiums (Margolin, 1915: 8; Ovtsyn, 1887: 35-36).

The struggle of Russia's advanced public for women's education, as well as the growing trend for young women to go abroad and get familiar with revolutionary ideas, forced the government to authorize the opening of various private women's courses. Thus, higher women's educational institutions were set up following a private initiative, and were allowed to open in university cities with the permission of count D.A. Tolstoy, Minister of Education (decree of April 9, 1876).

The start of higher female education in Russia was associated with the establishment of public higher women's courses (HWC) in the European part of the country, namely, in Moscow (1872), St. Petersburg (1878), Kazan (1876) and Kiev (1878).

The HWC in Moscow, established by V.I. Guerrier, were opened on November 1, 1872 in the building of the First men's gymnasium in Volkhonka, became the first higher educational institution in Russia with a university programme for women. And this was achieved thanks to the

activities of the outstanding Russian scientists, who were the first to start teaching at the courses free of charge as well as the ones who made it possible to have adopted the experimental charter of higher women's courses.

In 1874, a group of professors of the Kazan University, upon receiving approval for the extension of the cycle of natural-historical and mathematical courses, presented to the university council "a draft project for the establishment of higher women's education courses at the Kazan Imperial University in view of the need for female higher education felt by many as well as claimed from different sides, which the government itself countenances" (Shokhol', 1912: 183). Both the University council and the trustee of the Kazan academic district (KAD) reacted to the professors' proposal favourably and forwarded to the Ministry of Education (ME) their request to open women's courses along with the project and programme. The higher women's courses were opened in Kazan on October 3, 1876, as a two-year experiment based on the model of the already existing higher courses by Professor V.I. Guerrier in Moscow (NART, F. 92, Op. 1, D. 14815. L. 15).

The famous Bestuzhevskiye courses are traditionally considered as the third already functioning higher educational institution of the university type. They were opened on September 20, 1878 in the building of The Alexandrovskaya women's gymnasium. It was made possible thanks to the professors of the St. Petersburg University, who had been supporting the idea of the development of female higher education since the late 1850s (Pokrovskaya, 1906: 1-2).

Higher courses for women in Kiev, better known as the University of St. Princess Olga, date back to 1874, when a group of professors of the Kiev University, led by A.I. Selin, filed a request for pedagogical courses for women. Higher women's courses, also based on the courses by V.I. Guerrier, were opened on October 4, 1878 in Frommet's house in Bibikovsky Boulevard (Nestrelyay, 2017). It should be pointed out that the opening of the Kiev courses was initiated by women (Alekseeva, Antonovich, Vatinova, Gogotskaya, Gorokhova, Pokrovskaya, Tolochinova), who had raised the initial funds (500 roubles).

The founders of the courses were university professors, namely, N.V. Sorokin in Kazan, K.N. Bestuzhev-Ryumin in St. Petersburg, V.I. Guerrier and S.M. Solovyev (it was on his behalf that the courses were given permission to be opened) in Moscow, S.S. Gogotsky in Kiev (Nekrasova, 1882: 192).

All the complexities and contradictions of the courses' foundation period were fairly clearly represented in the solemn opening ceremonies. Thus, the opening of The Moscow HWC took place not in the university, but in the assembly hall of the First men's gymnasium, which placed emphasis on the status of the educational institution. As remembered by E. Nekrasova (one of the students), the priest, while trying to prove the statement that "female education does not in the least contradict with the Christian religion," nevertheless emphasized "that woman takes a noble position as mother as well as wife". S.M. Solovyov, pointing to the unsatisfactory level of women's education, noted, that "women fail to understand or share the interests, ideals of an educated man... They are hard to deal with," and therefore, it was decided to open the HWC, "which could give women higher general education" (Nekrasova, 1882: 192). It should be noted though that there was no such phrase, direct or otherwise, in the published solemn speech given by S.M., but almost all of that speech emphasized the priority of the general, not applied higher education for everyone, including men (Polozhenie, 1872: 10-17). Naturally, these words were perceived by the listeners with discontent as some were eager to major in specific subjects rather than being taught general courses (i.e. the demand was not for classical, but applied higher education, which could provide ample opportunities for professional and social self-fulfillment), while other listeners were offended by the reduction of the purpose of the courses "to turning female students into educated wives" (Nekrasova, 1882: 193). The aim of such actions on the day of triumph of all social forces that advocated the cause of women's education was to pay respect to the government, in order to, perhaps, reconcile the latter with new realities.

The ultimate objective of HWCs was to provide girls who had finished gymnasium and institute courses with an opportunity to continue their further general education as well as prepare a sufficient number of teachers with a good education level to work at senior grades of women's gymnasiums and institutions. While comparing the objectives of the courses with the rights their graduates acquired, one can note their explicit focus teaching, as, at the legislative level, the courses graduates were only entitled "the right to teach all subjects in upper grades of women's gymnasiums [and later at the home instructors institutions – author's note], thus receiving all rights, including pension ones", as well as

(though limited) "the right to teach in 4 junior classes of men's secondary educational institutions concerning those subjects that are related to the branches of science that they themselves had studied at higher education institutions" (Margolin, 1915: 24-25).

A girl was to have a secondary education degree to be admitted to the courses; also, all applicants were required to produce a home teacher certificate (Ovtsyn, 1887: 38), which was most likely related to the narrow focus of their subsequent employment, since neither teaching science nor teaching techniques were given at the courses.

Those willing attend the HWCs could be registered as credit students or noncredit students. The former were to attend classes of all compulsory subjects, answer questions while in class and at rehearsals, undergo a final examination to obtain a certificate of successful completion of the courses, while the latter were admitted to the courses provided there were enough seats and the convenience of the premises allowed that. They were not allowed to take the final examination, except for some cases (NART, F. 92, Op. 1, D. 12512. L. 5).

Most of the teaching staff of the courses consisted of universities professors, as well as others being entitled to teach. Thus, at the higher women's courses in Moscow among the teaching staff there were professors of the Moscow University F.A. Bredikhin, F.I. Buslaev, N.G. Vinogradov, V.I. Guerrier, I.F. Klein, V.O. Klyuchevsky, V.F. Miller, A.G. Stoletov, N.I. Storozhenko, N.S. Tikhonravov, A.N. Schwartz, A.I. Chuprov; Professors of the Kazan University N.N. Bulich, N.A. Firsov, N.A. Osokin worked at the HWC in Kazan; Professors of the St. Petersburg University, A.N. Butlerov, A.N. Veselovsky, N.I. Kareev, D.I. Mendeleev, E.V. Tarle, F.F. Zelinsky, S.F. Platonov, I.M. Sechenov, S.A. Wengerov worked at the HWC in St. Petersburg; Professors of the Kiev University G.K. Suslov, V.S. Ikonnikova, O. Shklyarevsky, M.E. Vaschenko-Zakharchenko, O.O. Kotlyarevsky, F.M. Garnich-Garnitsky and S.S. Gogotsky worked at the HWC in Kiev.

The hardest issue after overcoming all the bureaucratic obstacles to be allowed to open the courses was always the financial one. Unfortunately, the HWC was denied a government grant; the ME only provided certain support for women's courses in the form of an annual grant of 1,000 roubles (Derevitskiy, 1902: 5). Therefore, the lectures attendance fee was the main source of subsistence. The noncredit students paid an hourly fee of three roubles per hour at the Kazan courses (NART, F. 92, Op. 1, D. 14815. L. 12) and five roubles for per subject at the Bestuzhevskiye courses. No students were admitted free of charge. It should be noted that was a lot of money for the time under consideration. Almost everywhere, the professors expressed their willingness to lecture free of charge during the first year. Voluntary donations made by certain societies or individuals were an additional source of subsistence.

In Kazan, in addition to the funds raised for attendance, certain donations were made by professors N.N. Bulich (100 roubles), N.V. Sorokin (100 roubles), N.A. Osokin (710 roubles) (NART, F. 92, Op. 1, D. 14815. L. 16). One can see how considerable these donations were by taking into consideration that, firstly, the professors lectured free of charge, i.e., they sacrificed their labour activities and time. Secondly, only if there was any money left, it was split up between the teachers according to the number of lectures being given as a reward for their work. And the annual hour at the Kazan women's courses was paid at an average of 200-220 roubles, whereas the number of practical classes and seminars was not taken into account at all (Osokin, 1878: 438).

Some teachers in Kazan, as well as at other HWCs, donated a part of their fee earnings in favor of talented though needy students, since §23 of the HWC Rules allowed exemption from paying attendance fee provided private payments have been made in favour of such category of students. Meanwhile, it should be noted that the Kazan courses never received any of such payments. Despite the lack of funds, the courses were launched and became a success within two years.

The situation at the Bestuzhevskiye courses was partially different as substantial donations were regularly made by the Society for the Delivery of Funds to Higher Women's Courses organized by A.P. Filosofova under the chairmanship of the rector of the St. Petersburg University, Professor A.N. Beketov, whom N.V. Stasova thought to be "the strongest competitor, employee and our assistant in all matters, despite having a lot of responsibilities at the university and worries about his huge family, which was totally dependent on him" (Stasova, 1899: 217). Some of the professors who lectured at the courses, namely, D.I. Mendeleev, A.M. Butlerov, I.M. Sechenov and others were among the courses' regular sponsors. Baron O.I. Ginzburg annually contributed 1,000 rubles. O.N. Rukavishnikova, in addition to the donations, was the initiator of charity evenings and

concerts in favor of women's courses. Two societies, i.e., the ones of "aiding to the students" and "aiding to the graduates" helped both the students and graduates. In addition, since 1879 the St. Petersburg courses began to receive state funding (Rozhdestvenskiy, 1902: 514), and another 3,000 rubles provided by the city since 1882 (Zinchenko, 1901: 29). In addition, even private fund raising for the courses was limited, since "the Ministry of Internal Affairs banned newspaper publications on both accepting donations for the courses and subscribing for lectures attendance" (Zinchenko, 1901: 28). Nevertheless, even in the capital, attendance fees accounted for about 80 % of all earnings for the first period of the history of the courses (Ovtsyn, 1887: 39).

The financial situation of the higher women's courses in Kiev was also quite good as public donations were significant, but no proper distribution system was organized by the pedagogical council and board of the trustees. According to A.N. Derevitsky, "on January 1, 1886, the pedagogical council and board of the trustees the courses had raised a total of 167,247 roubles for the current needs of the institution, besides the donations for special purposes making up to 21,320 roubles" (Derevitskiy, 1902: 11).

It should be noted that in both the capitals and provincial cities, the local city administration showed, as the periodical press noted, "shameful" indifference to the situation and needs of higher women's educational institutions during their entire existence. Though the St. Petersburg city administration was an exception to a certain extent. The insufficiency of the public funds inflow in favour of female higher education was influenced by the opinion of public figures as most of them failed to support the development of female higher education. This situation caused, first of all, the material constraint of the higher women's courses in the provincial cities, in particular, in the city of Kazan. According to M.L. Peskovsky, a supporter of women's education, "some philanthropists do not go to the aid of higher women's education because they are not sufficiently familiar with its past and brilliant results that have been achieved so far; others, upon hearing the voices of false protectors, are likely to look at the higher women's education, being one of the most exalted manifestation of Russian social life, as something illegal" (Peskovskiy, 1882: 122).

The Kazan society reacted to the courses indifferently. N.A. Osokin wrote about this, "The Kazan public itself reacted with phlegmatic indifference to the opening of courses, and to their further destiny. Nobody came with the offer of their donations for the cause of higher women's education; nobody undertook to pay the required fee for a needy student; the so-called trustee council, working for the philanthropic purposes in Moscow, failed to be set up in Kazan; the concert that had been organized by the founder (N.V. Sorokin) and myself (that is, N.A. Osokin) raised a very insignificant amount of money" (Osokin, 1878: 435). Only the sympathy for the courses extended by the Kazan University, which provided the HWC an opportunity to use its classrooms and laboratories free of charge, supported the courses, thus significantly reducing the costs and maintaining their sustainability.

The striking poverty of the Kazan HWC did not stop the initiators from immediately putting the matter firmly and drawing the attention of the studying young women to serious scientific university-like work.

After the two successful years of the courses educational activities in Kazan, the pedagogical council resumed applying for permission to be called the higher women's courses at the Kazan University, in order to give more thoroughness to the courses and strengthen their scientific authority. However, before this idea was accepted, there was a decree issued by the ME, which determined the private status of the courses like that of other private educational institutions, thus making them subordinate in terms of general supervision and reporting to the AD trustee. In our opinion, the courses had never had the official nature, since they were launched upon the initiative of several professors along with the assistance of the university council. In the third year of the history of the Kazan courses (March 26, 1879) at the suggestion of their founder N.V. Sorokin the general curriculum of the courses was divided into two specialties, namely, historical-philological and physico-mathematical. Thus, the two departments were established taking the corresponding university faculties as the model, though being characterized by a two-year period of study.

The Moscow courses almost immediately acquired a historical and philological focus. There was also a two-year training course, in 1879 it was increased to three years. The Bestuzhevskiye courses in St. Petersburg had three departments: historical-philological, physico-mathematical and applied mathematical, the second and the third being differentiated only since the second grade. The teaching course, though originally designed for three years,

became a year longer since 1881 (Margolin, 1915: 8-9). The Kiev courses, like those in Kazan, had two departments: historical-philological or historical-philosophical and physico-mathematical. However, they adopted a three-year duration of study since the second year of their educational activities, and a four-year one two years later, just as The Bestuzhevskiye courses did (Derevitskiy, 1902: 11).

The curricula in all subjects were approved by the trustees of the academic districts, but they were not strictly regulated and allowed the pedagogical councils of women's courses, consisting of the teachers working there, to make adjustments to the content of training, in particular, in curricula and course programmes. So, among the compulsory subjects of the Moscow courses there were Russian literature, general literature, general history, history of Russia, history of civilization, history of art, physics. Foreign languages, mathematics and hygiene were taught to those who wished that. Later, solely for the pedagogical purposes, astronomy, encyclopedia of natural sciences and hygiene were introduced (Zotova, 2012: 147).

For all subjects, compulsory practical classes or experimental lectures were provided at all departments. At the historical-philological department, practical classes consisted of writing essays and abstracts on various topics, while laboratory work was added at the physico-mathematical department (Derevitskiy, 1902: 6). A distinctive feature of the Kiev HWC was having a great number of non-compulsory subjects while not enough practical training.

In Kazan, the following subjects were read at the historical-philological department: Russian grammar and history of Russian literature, natural history, general history, Russian history, history of philosophy, German literature, English, history of physical and mathematical sciences, and hygiene. The course of the physico-mathematical department consisted of natural science, geometry, algebra to geometry application, geography, physics, history of philosophy, hygiene, chemistry, history of physics and mathematics, English (Peskovskiy, 1886: 62). In November 1881, the curriculum was supplemented by teaching aesthetics and chemistry, which meant that the programme of teaching at both courses was finally established. In 1884, at the suggestion of N.A. Osokin, teaching of Latin was introduced as a non-compulsory subject (Peskovskiy, 1886: 62). In general, despite the introduction of special departments, the Kazan HWC kept their focus on general educational, especially at the historical-philological department.

Reading lectures at the Kazan courses took place in the university classrooms in the afternoon, i.e. during the time off university lectures. In those days, when lectures at the university were not read, there were no classes at the courses either. There were also evening lectures at the Bestuzhevskiye courses, originally operating in the gymnasium's building (Pokrovskaya, 1906: 2).

The students came from different parts of Russia. In St. Petersburg and Moscow, for example, quite a few students were from remote regions of Russia (Zhukov, 2015: 98). In Kazan, in addition to locals, there were students from Astrakhan, Tambov, Kiev, and Tomsk. In Kiev, the first students were the city's residents, and only 12 people were from Odessa and Kharkov (Derevitskiy, 1902: 11).

The students attending the courses came from different social strata. However, the vast majority came from the wealthy strata of the population. In the first decade of the Bestuzhevskiye courses, daughters of both the nobility and officials were a dominating group; in subsequent years the proportion shifted towards those from different social classes (Zhukov, 2015: 98). In Kazan, in the 1876/77 school year 14 students came from the families of the nobility or officials, 5 students came from the clergy families, 6 were children of the honorary citizens and merchants, and 2 came from the bourgeois families (NART, F. 92, Op. 1, D. 14815. L. 12).

Examinations at the courses were conducted annually to check the students' knowledge. Both the examinations and requirements for them were strict and voluminous. According to the memoirs of T.N. Klochko, a student at the Bestuzhevskiye courses, "examinations in mathematics consisted of two tasks and two theoretical questions, their presentation taking up to 4 pages of large format. The students who tried to pass the examinations without revising were called "happy-go-luckies." They were not respected and did not stay long at the courses" (Klochko, 1971: 25). An indispensable condition for obtaining a certificate of completion of the full course was making a special course essay or dissertation (Derevitskiy, 1902: 6).

As a rule, noncredit students were not tested. Nevertheless, at almost all the courses, even they expressed willingness to be tested in all subjects.

The works by the students of the Kazan courses, presented by the end of the second year of training (1878), were as often as not of the same quality level as the works by the best university students. According to the reports of the professors and the scientific supervisers, the following works were singled out: the ones by Lydia Kvashnina on "The internal state of Russia in the 17th century according to Kotoshikhin" as well as "On the Spirit of the Laws" by Montesquieu; by Elizaveta Kotelnikova on "The Kazan take in 1552", by Elizaveta Milovidova "Alexander Nevsky", by Alevtina Romanova "A brief overview of Russian textbooks on world history in terms of their applicability to the general educational goals of secondary schools" (Osokin, 1878: 437). Thus, it can be concluded that the students did not only dwell upon purely historical topics, but also turned their attention to their further pedagogical activities.

The pedagogical council of the Bestuzhevskiye courses annually awarded the students' best works. So in the 1882/83 academic year, the following works were awarded: on chemistry of Davydova, on Russian history by Alexandrova, on mathematics by Serdobinskaya and Schiff, and the works by Siryatskaya, Peggerson, Balabanova, Golubkova, Efron and Chaychinskaya in 1884/85 academic year.

In 1878, there was the first graduation at the Kazan HWC. The final tests, conducted in April 1878 in the presence of the KAD trustee, showed the good quality of the classes and the students' readiness to go through their studies. A total of 29 students (25 credit students, 4 noncredit students) completed the course; 4 of them received excellent assessment marks in all subjects (Lydia Kvashnina, Augusta Lavrova, Sofya Kotelova, Elizaveta Kotelnikova), 17 students received an average total "above good", 8 students received an average total "below good" (Osokin, 1878: 437).

Despite the good level of education at the HWC, "yet it still fails to be equal to the university one. It is the initiators of the courses who consider them to be only the first stage in the development of a true higher educational institution for women in Russia" (Ovtsyn, 1887: 36).

All those who had completed the course expressed their willingness to devote themselves to teaching in secondary schools. However, in order to obtain the right to teach in all degrees of women's educational institutions, under the order of the ME issued on March 11, 1878, the graduates had to pass special tests at university faculties. Therefore, following the same decree, the councils of universities were to draft rules to provide special tests. Then the project was to be considered by the board of trustees, and then to be submitted to the ME for approval. It should be noted that it was already in May 1878 that the council of the Kazan University presented its draft to the ministry.

The project was drawn up at joint meetings of the historical-philological and physico-mathematical faculties as applied to the rules of the ME for the testing of teachers of gymnasiums and progymnasiums, except for an examination in ancient languages as having been replaced by other subjects. The test subjects consisted of principal and additional ones, the applicants could give their answers either in written form or orally.

According to the Kazan draft, all those who had completed the secondary women's educational institutions, as well as domestic teachers certified in three subjects (Russian, arithmetic, history with geography), were admitted to take part in the tests. The advantage of the HWC graduates was that they were to be exempt from being tested in additional subjects.

A total of 575 Russian women received higher education at the Kazan HWC. 152 women graduated from the course with a diploma (NART, F. 92, Op. 1, D. 16622. L. 10). 2,500 students graduated from the Bestuzhevskiye courses in 1878-1885 (Ovtsyn, 1887: 40). The Kiev Courses had 1,098 graduates, of whom "about 200 people passed all the required examinations, while 75 completed a full four-year course, but were not subjected to final tests" (Derevitskiy, 1902: 11).

Higher women's courses made a huge contribution to the development of culture and education in Russia. Among the courses' graduates there are such prominent figures as the poetess A.A. Akhmatova (Kiev), writers: O. Forsh, A.A. Karavaeva, E.M. Prilezhaeva-Barskaya, T.D. Russes (St. Petersburg), Z.S. Ivanova (Moscow), actresses: L. Block, E.I. Timme, O.G. Klementyeva (St. Petersburg), artist M.P. Chekhova (Moscow), as well as people of name in education N.K. Krupskaya and E.I. Likhacheva (St. Petersburg), first woman to receive a doctorate in history O.A. Dobyash-Rozhdestvenskaya (St. Petersburg), first Russian female astronomer S.V. Romanskaya (St. Petersburg), mathematics: Academician P.Ya. Polubarinova-Kochina and Professor V.I. Schiff (St. Petersburg), and others.

Table 1. Number of students at the higher women's courses (NART, F. 92, Op. 1, D. 16622. L. 9; NIOR RGB, F. 70, Op. 72, D. 11. L. 1-28; Valk, 1965: 5)

Academic year	**Number of students**			
Name of the courses (opening date)	The Moscow courses by I.V. Guerrier (1872)	The Kazan courses (1876)	The Bestuzhevskiye courses (1878)	The KievcCourses (1878)
1872-73	58	-	-	-
1873-74	103	-	-	-
1874-75	116	-	-	-
1875-76	117	-	-	-
1876-77	116	96	-	-
1877-78	99	113	-	-
1878-79	106	85		324
1879-80	107	55	789	
1880-81	183	36	840	
1881-82	169	43	938	708
1882-83	179	32	217	
1883-84	213	24	163	
1884-85	256	43	112	
1885-86	227	47	39	195

Thus, we can conclude that, in general, over the years under study, the Kazan HWC were characterized by having a small number of students. The rapid increase in the number of female students in the first two years can be explained by a big number of young women, who were looking forward to being admitted to higher education. This phenomenon was typical for all other women's courses. According to M.L. Peskovsky, the number of female students was usually settled between the third and fifth year while the courses are in operation, and then rose steadily with different speed, provided the financial situation of the educational institution was favorable, and there were no hindrances. This was a general trend in the dynamics of the number of the students of all the courses (Peskovskiy, 1886: 63).

The decrease in the number of the students could be clearly seen in the third year (1879/80). In fact, even taking into consideration scarceness of the funds, there should have been at least 100 students, but for the decree by the ME issued in July 1879 concerning noncredit students. According to that, noncredit students could be admitted to the courses only "as an exception, following the decision of the pedagogical council of the courses. Such applicants are required to have been born into the families living in Kazan, or to have a steady job in the city, another requirement being personal acquaintance of the AD trustee to the applicant. The trustee is to provide a special permission for the applicant as well as is to bear full responsibility for the person" (Pravila, 1879: 1; NART, F. 92, Op. 1, D. 12512. L. 66).

Thus, this decree basically made null and void that part of "The Courses Regulations" which stated that noncredit students were admitted provided there were enough seats and the convenience of the premises allowed that. Taking into account the population of Moscow and St. Petersburg, both being over a million people each, then the decree of the ME did not play any significant role for them. But for the higher women's courses in Kazan, the city with just about 150 thousand residents, this decree did affect the number of female students.

In subsequent years, due to the above-mentioned decree, the number of noncredit students was immediately reduced by the local educational administration to eight people in 1879/80 academic year, to seven in 1880/81, to five in 1881/82 and 1882/83 (NART, fund 92, inv. 1, file 16622: 9). Judging by the official information, the Kazan educational administration actually applied a new rule to the extent that the Ministry of Education never meant to.

Such severity in relation to the Kazan HWC struck this young institution especially hard, finally undermining its infavourable financial situation. The small number of students at the Kazan

courses during the later period meant that the institution eventually failed to tackle financial constraints. All this was soon to lead to its natural death.

As the female higher education system progressed, a significant part of the society, kept on denying its usefulness and predicted failure. In this, they were supported by a part of the press. Even at the beginning of the XX century, when the educational system for women was already highly developed, conservative hysteria was at its peak. For example, one of the authors, while trying to justify uselessness of keeping the women's educational system running, estimated that only 30% of the graduates were healthy enough to take up social or civil service provided that two-thirds of the capable graduates were eager just to get married, while the rest would not be capable of working at full capacity (Dididze, 1911: 2).

All kinds of accusations and criticism towards the courses could also be found in upper ruling spheres. These complaints were brought to the attention of the emperor. Therefore, in order to find out whether the information was correct, he demanded that it should be checked by the chief of the gendarmes, Adjutant General Drenteln, who was able to attest to correctness of certain accusations against the courses, mainly relating to the arrangement of courses, curriculum setting, etc.

However, considering the archival materials on the Kazan HWC, it can be concluded that the students of the Kazan courses were diligent in attending classes. Despite the inconvenient evening hours, despite the weather, often being quite stormy, they always came without delay in the university's classrooms, some of them getting from remote parts of the city. Only being sick could keep them at home. Not being content with passive listening to the lectures and writing down the highlights, they compiled them carefully at home using a variety of printed sources. For example, the teacher of the general history N.A. Osokin, while looking through lectures on his subject, concluded that there was very little to be added. This is just one positive aspect of the courses that can characterize their educational activities.

Despite the success of female higher education, the government saw the revolutionizing influence of education, especially higher education, on young women. Therefore, in the period of the restriction of education, women's educational institutions were the first victims of czarist autocracy. Since the government was frightened by the revolutionary-democratic movement of the 1880s, it closed a number of women's courses. In 1884, a special decree was issued by the ME, putting an end to students admission at the Kazan courses (Sbornik postanovleniy, 1895: 711). Two years later, the same was done concerning the rest of the courses (Rozhdestvenskiy, 1902: 628). Thus, the junior grades of the courses were to be gradually closed, the ones being always the most populous strictest in terms of following the curriculum.

The background for this decree was the fact that the ME had established a special commission under the chairmanship of the deputy minister to work out a new set of regulations for higher women's courses. It was due to this decision that the course of life at the courses was disrupted and the amount of the attendance fees significantly dropped. It took an extreme strain of all means to let students of the senior grades to complete their studies.

It should be especially emphasized that, along with the reduction of the classical higher and general education, the government took the course on the development of applied education. Almost simultaneously (in 1883) preparations began for the opening of higher women's medical courses, as, according to the remark of the Minister of Education, I.D. Delyanov, their establishment "would be much more expedient and useful than the higher women's courses" (Rozhdestvenskiy, 1902: 629). As a result, the St. Petersburg Women's Medical Institute was opened in 1897 (Margolin, 1915: 11).

At the second stage of female higher education development, the activities of the higher women's courses were resumed in St. Petersburg (1889) and Moscow (1900). That, as well as the opening of new courses, became possible only at the beginning of the 20th century, when under the pressure of the revolutionary movement, the government was forced to make certain concessions in women's education.

Over all these years (1886 to 1905), Russian society proved that there was the need for the scientific education of women at that period. The women's demand for higher pedagogical education was so intense that, for example, every year, short-term pedagogical courses, that were repeatedly opened in various cities of the Kazan province, had to turn down a lot of women, who were actually entitled to become their students, as their number nearly doubled the one of the available places (Magsumov, Nizamova, 2016: 691).

On the other hand, women's secondary educational institutions constantly had a shortage of teaching and educational personnel who had the appropriate scientific nature training, since the teachers of the upper grades of women's secondary schools were required to be good not only at the subject being taught, but also at related sciences to the extent of the university programme. Nevertheless, according to the archival data, applications for the resumption of the Kazan higher women's courses activities appeared only 15 years after their closure.

In 1904, with the permission of the KAD trustee, a committee for the organization of higher women's courses in Kazan was formed, its members being the professors of the Kazan University. However, the draft of the courses regulations was not approved by the ME due to the weak financial aspect of the project (Ot komiteta, 1904: 264-265). A similar refusal was received in 1905. Only under the influence of the first Russian revolution of 1905–1907, which had made millions of Russians involved in public social activities, on December 3, 1905, the ME was allowed to open private HWCs with education programmes other than those of secondary schools.

At the third inter-revolutionary stage, there was a rapid growth in the number of women's universities as well as introduction of specialization in higher women's education. On July 18, 1906 the ME allowed opening of the HWC in Kazan, but with the only historical-philological faculty, though the Kazan committee's draft initially included three faculties, namely, historical-philological, physico-mathematical and law faculties.

During the same year, the HWC was reopened in Kiev consisting of historical-philological, physico-mathematical and law faculties. Nevertheless, there were totally not enough women's universities, as evidenced by the colossal competition among the applicants: in 1904, more than 900 applications were submitted to the Women's Medical Institute, and only 250 people were enrolled; there were 1230 applications for 550 places at the St. Petersburg HWC. In 1905, the former institution got 1,555 applications and enrolled 200 students while the latter got 950 applications and enrolled 600 students (Pokrovskaya, 1906: 4). It should be noted that from December 1905 to January 1913, over 30 permissions for the opening of courses were given, i.e., the number of courses opened over those seven years is five times as big as the one over the previous 40 years (Shokhol', 1913: 2).

Finally, in 1911, women's education, in terms of its legal status, approached that of men as the courses had programmes that had been approved by the ME, which eventually gave them a status equal to the one that universities had; thus, their graduates were allowed to take state examinations at universities, receiving a full-rate degree (Margolin, 1915: 17-25).

5. Conclusion

5.1. The establishment of women's higher education in Russia became possible thanks to the broad social movement of the 1860s in the context of implementing the course for the modernization of the country. It took place along with the formation of the "women's issue" in Russia and, in terms of this aspect, made Russia ahead of the West.

5.2. The first stage of this process was characterized by the establishment of women's higher courses at universities. The model of establishment, the one chosen by the government, characterized the traditionalist and conservative foundations of the Russian state and, especially, its educational department. The authorities implemented the technology, the one being used at universities in the first half of the 19th century to set up privileged general education institutions, while limiting the possibility of professional fulfillment of graduates to the educational sphere.

5.3. Lack of state support along with meager or no financial assistance for the provincial courses from local community did not become a serious hindrance to the development of women's education. The distinguished professors and advanced public forwarded their knowledge, energy, potential and finances to modernize the higher school.

5.4. Universities and their professors played a significant role in the development of women's higher courses as universities lodged the courses, while the professors as often as not taught free of charge. Thus, enhanced by the gradual convergence of curriculum content of both universities and courses, the courses provided a high level of training for graduates.

5.5. The courses increased the number of Russians who had access to higher education, as well as enabled thousands of women to change and model their own way of life, improve quality of life and raise social status, giving them the opportunity to work in the pedagogical field at women's

secondary educational institutions, and subsequently, in some cases, to be able to engage in intellectual labour.

5.6. The possibility for women to receive higher education, despite all the hindrances of its development, contributed to the establishment of professional women's education, pedagogical education first and foremost, and subsequently medical education. This form of women's education became a kind of national response to the challenges of modernization, an attempt to maintain a certain balance in traditional gender relations.

5.7. The right for women to receive higher education, albeit characterized by limited possibilities for its implementation, and the subsequent granting to the courses graduates (upon meeting a certain number of additional requirements) to equate their degree with the one of university graduates testify to the legalization of the institution of education as both a social institution and value in a modernizing society, thus "removing" the opposition of modernization and traditionalism. Meanwhile, the WHC establishment in the modernization enclaves, namely, capitals and large provincial centers along with declaring equal rights and obvious inequality increased social discontent in these centres and deepened the differences in the way of life and mentality between the centers of modern life and the vast territories of the rest of Russia.

5.8. By the beginning of the 20th century, women in Russia failed to get equal education right with men. Moreover, the state, though being forced to recognize the right of women to receive higher education, which was contrary to the interests of the ruling elite, continued to hamper in every way the practical application of knowledge received by women as the result of studying. Women's higher educational institutions seemed to be the hotbeds of revolutionary ideas to the authorities. Russian women in the fight for equality with men focused their attention on getting both education and profession, aimed at winning equal civil and political rights with men. Women were still not admitted to state and many types of public service.

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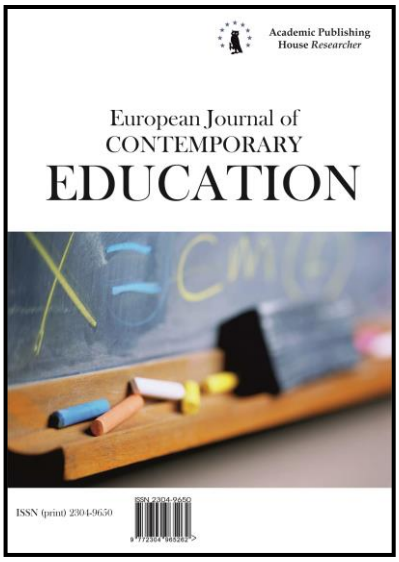

Higher and Secondary Education of the Don Cossacks in the Context of the Epoch: the Time of the Great Reforms

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Abstract

The article is devoted to the peculiarities of higher and secondary education of the Don Cossacks in 1850–1860 and the influence of these peculiarities on the public discussion between the "progressists" and "Cossack men". The author shows that a significant part of the educated Cossacks, including those of non-noble origin, studied outside the Don Host Land, using special openings for the Don natives in higher and secondary educational institutions, that were covered by public and state. The openings in Kharkov University were of particular importance. Its graduates were the pioneers of the Don journalism and founded the first scientific institution in the Don region, the Novocherkassk Statistical Committee. The author also criticizes the opinion, according to which poorly educated people prevailed among the "Cossack men" (supporters of preserving the traditional Cossack way of living) in the 1860's. He shows that the general level of education wasn't the determining factor, but the place of studying.

Keywords: The Don Host Land, Don Cossacks, Don intelligentsia, Kharkov University, Novocherkassk Gymnasium.

1. Introduction

The history of education in the Don region in the XIX century has recently drawn the attention of researchers. It is necessary to highlight the articles by A.N. Karpenko and N.V. Donskova, dedicated to this topic (Karpenko, 2006; Donskova, 2011). Unfortunately, it is difficult to consider the works of these authors successful to the full extent. Their attempt to have a look at the history of the education in the Don region in general, "from a bird's eye view" in practice led them to uncritically interpret popular information and make factual errors in some cases.

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In particular, N.V. Donskova positions the Novocherkassk Gymnasium as a place of studies for only the "elites of the Don society", almost inaccessible to broad segments of the Cossacks (Donskova, 2011). However, according to N.I. Krasnov, who taught at the gymnasium in the early 1860's, only 143 students were children of hereditary noblemen who belonged to the Don elite, 232 children were from the chief officers' families and 123 were children of the ordinary Cossacks (Krasnov, 1863: 400). A.N. Karpenko states that in the Don region one student was accounted for 42,240 peasants (Karpenko, 2008: 24). Obviously, he didn't quite correctly understand the work of the above-mentioned Don statistician N.I. Krasnov, in which he refers only to serfs (Krasnov, 1863: 401-403). In addition, both A.N. Karpenko, and N.V. Donskova almost didn't associate the development of the Don education with other processes taking place in the Don region.

A fundamentally different approach to the study of the history of the education in the Don region was introduced by M.N. Bukhtiyarov in his thesis and articles on the birth of the Don intelligentsia (Bukhtiyarov, 2010; Bukhtiyarov, 2008). The contemporary historian considers the education in the Don region as a "channel for the formation of the Don Cossack intelligentsia", considering not only educational institutions in the Don region to be of fundamental importance but also the results of their activities.

It seems to us that the significance of the education received by the Cossacks was even more important for the history of the Don Host Land than the notions suggested by M.N. Bukhtiyarov. N.I. Krasnov linked the political likes and dislikes of the Don public activists of the early 1860s with the place of their education (Krasnov, 1863: 231). Later Don historian V.N. Korolyov proposed the studies in higher educational institutions to be the most important factor determining the political views of many Don Cossacks of this era (Korolyov, 1991: 229). In our article, we will try to understand if these statements corresponded with reality and what impact the educational system in the Don region in the middle of the 19th century had on the hot public debate on the future of the Don Cossacks in the early 1860s.

2. Materials and methods

The most important source of the basic statistical data on the system of the Don education in 1850–1860 is N.I. Krasnov's book "Materials for geography and statistics of Russia, collected by the officers of the General Headquarters. The "Don Host Land" (Krasnov, 1863). However, this work is not limited by its statistical value: N.I. Krasnov included his personal observations and in some cases they radically change the impression from the official figures (Krasnov, 1863: 399). The collection of "People of Don in the XIX century" will also be of a fundamental importance for us (People of Don, 2003). Among other things, it contains biographies of the Don public figures of 1860s. On the basis of these two books, we will try to establish, firstly, what secondary and higher educational institutions were the most popular among the Don Cossacks, and secondly, what kind of education the certain participants in public discussions on the future of the Don Cossacks in the early 1860s got. We will analyze these discussions according to the testimonies of their participants we have nowadays (Karasyov, 1896; H.P., 1863), and according to the articles of the contemporary historian A.A. Volvenko (Volvenko, 2015b; Volvenko, 2015c; Volvenko, 2015d). In addition, during the archival search in the State Archives of the Rostov Region, we found the documents clarifying the role of I.P. Pryanishnikov (graduate of Kharkov University and the editor of the "Donskie voyskovye vedomosti") in the public life of the Don region in the early 1860's (GARO. F. 55. Op. 1. D. 70).

In order to form an integral picture from these heterogeneous and sometimes contradictory sources, we will apply the historical-system method. In order to reveal the relationship between the education level of the Don region public figures and the position they occupied, we will have to apply historical-comparative and historical-biographical methods. We will not even make an attempt to characterize all the aspects of higher and secondary education of the Don Cossacks during the period of 1850–1860 in detail (in our opinion, this would require a full-fledged monographic study), but we hope that we have succeeded in identifying several important trends that historians have not previously drawn their attention to.

3. Discussion

In 1861 on the territory of the Don Host Land there was only one secondary school for boys: the Novocherkassk gymnasium with 532 students (Krasnov, 1863: 398-400). There were no other

full-fledged secondary educational institutions, even military ones. It was assumed that this would not cause any difficulties if students of the gymnasium were not going to enter universities they had to study law or military science instead of Latin. And immediately on the graduation, if they received a good (4) average score in all subjects, they obtained their first rank (Krasnov, 1863: 399). However, in reality this system did not work: according to N.I. Krasnov, the "weak" students usually refused to study Latin in favor of practical sciences, and they obtained a sufficient average score for reaching their first personnel rank in one or two or even in three years (Krasnov, 1863: 399). Thus, the modern historiography statement that the Novocherkassk gymnasium gave its students a full military education (Donskova, 2011) should be considered a clear exaggeration. The work of the gymnasium had some other complaints. For example, while the circulars of the Ministry of Education forbade having more than 40 pupils in the classroom, there were 59 and 58 pupils in parallel first grades, in the parallel second – 56 and 44, and in the only fifth grade – 65 in Novocherkassk gymnasium in 1863. The management of the gymnasium was extremely cautious about opening new classes, since this required additional expenses for new teachers and new premises (Artinsky, 1907: 198-199). Things were even worse with the library and specialized rooms: in 1864 it turned out that a part of the gymnasium books was stolen, and the collection of minerals was in a complete disarray (some of the minerals were not systematized at all, and some were systematized incorrectly) (Artinsky, 1907: 202). Finally, the teaching of a number of subjects was purely formal: thus, the teachers of the Russian language did not select texts for their dictations, and one of them admitted that he dictates "something" at his lessons (Artinsky, 1907: 193-194).

It is not surprising, that in such a situation some representatives of the local elite preferred to send their children to study outside the Don Host Land. In some families, this has turned into some kind of a tradition that was passed down from generation to generation: the father of the mentioned N.I. Krasnov, Lieutenant-General I.I. Krasnov, studied at a boarding school at Kharkov University and his brother, S.I. Krasnov, studied in a similar institution at Moscow University (Korolyov, 1991: 211, 244). N.I. Krasnov graduated from the 1st Cadet Corps in St. Petersburg (People of Don, 2003: 247), and another son of I.I. Krasnov, M.I. Krasnov, became the first Don Cossack who graduated from the Law School (along with G.Z. Zhogolev) (Korolyov, 1991: 249). N.I. Krasnov's children studied in the 1st classical gymnasium of St. Petersburg (Korolyov, 1991: 251). Thus, the representatives of the Krasnov family received secondary education in the capitals more often than in the Don region in the XIX century. In other families, children who have already started to study at the Novocherkassk gymnasium were transferred to more prestigious educational institutions. For example, A.P. Chebotarev, an assistant in the Military Ministry irregular troops department, was transferred to a boarding school at Kharkov University (People of Don, 2003: 504) and the writer A.N. Pivovarov – to the Mining Cadet Corps of St. Petersburg (People of Don, 2003: 358).

4. Result

The Mikhaylovsky Cadet Corps of Voronezh became a more accessible alternative to the Kharkov, Moscow and St. Petersburg educational institutions for the Cossacks' children in the 1840's. It is interesting to note that during the preparation for the establishment of this educational institution in 1836, the Don Ataman M.G. Vlasov appealed to the Emperor Nicholas I with a petition to allow "to enroll the children of the Don nobility in the cadet corps established in the city of Voronezh" promising to share the cost of its establishment with the Voronezh nobility (Krasnov, 1863: 405-406). The petition was granted (Krasnov, 1863: 405-406). Moreover, the military commanders, seeing the need to increase the number of educated officers, and realizing that the Novocherkassk Gymnasium does not cope with this task, gradually introduced the Cossacks payment system in military schools outside the Don Host Land. In the beginning of 1860's, 50 Cossack cadets studied at the expense of the host, 12 – at the expense of the state treasury, 9 – at the expense of the sums donated by the host and nobles to the Voronezh Mihailovsky Cadet Corps, and 2 – at the expense of the sums donated by nobles and the host for the "boarders of Prince Chernyshyov" (Krasnov, 1863: 404). Thus, 73 Cossacks studied at the public and state's expenses in the cadet corps and one Cossack in two or three years received a full-fledged secondary military education in the Novocherkassk Gymnasium with a first time-rank. The situation was similar in the field of higher education. The authorities tried to compensate the lack of higher

educational institutions in the Don region by providing a certain number of openings in universities and institutes outside the Don Host Land for the natives. As a result, the Don Cossacks often received higher education in the University of Kharkov, in which 30 people were to study at the expense of the host in the beginning of 1860 (Krasnov, 1863: 405). Despite the imperfections of the system, by the beginning of 1860, among the Don intelligentsia there were graduate people, who participated in the university life, who could not help contributing to the intellectual development of the province. It is difficult, for example, to overestimate the role that they played in the development of the Don periodical press. Thus, A.A. Karasyov, who studied at the Faculty of Law of Kharkov University in the 1850's, became the editor of the first private Don newspaper "Donskoy vestnik" in 1866 (People of Don, 2003: 191). V.D. Sukhorukov's work "The Historical Description of the Don Host Land "(important for the historiography of the Don Cossacks) was published in this newspaper (although only partially) by the initiative of A.A. Karasyov (GARO. F. 353. Op. 1. D. 1. L. 242). I.P. Pryanishnikov graduated from the same faculty in 1859, and in 1861–1864 he was the editor of the "Donskie voyskovye vedomosti" (People of Don, 2003: 419). According to the contemporary historian A.A. Volvenko, it was I.P. Pryanishnikov who managed to turn a boring, semi-official newspaper into a platform for discussions on the most important issues for the Cossacks. Only in the first year of his editorial work the number of subscribers increased from 207 to 1600 (Volvenko, 2015c: 96-97)! In addition, I.P. Pryanishnikov was the author of the first collection of documents on the Don region history (Pryanishnikov, 1864). Graduates of Kharkov University in 1850 founded the first scientific organization in the Donregion, having managed to improve the work of the Novocherkassk Statistical Committee. This happened in 1865–1875, when A.M. Saveliev, who graduated from the Faculty of History and Philology was the Secretary of the Committee. Under his administration the committee began publishing its own publications: regional memorable books, collections of scientific articles and lists of inhabited places (People of Don, 2003: 431). S.F. Nomikosov, who graduated from the Physics and Mathematics Faculty of Kharkov University with a silver medal in 1859, was the Secretary of the Committee in 1875–1886. Nomikosov personally edited the materials of the first Don census of 1873 (People of Don, 2003: 341) and wrote one of the most famous works on the Don statistics of the XIX century, "Statistical Description of the Don Host Land" (Nomikosov, 1884).

Various kinds of special educational institutions were the most popular alternative to Kharkov University for the Cossacks, who wanted to obtain higher education until 1860. Six openings in the Medical-surgical Academy and the Mining Institute, as well as 3 openings in the Konstantinovsky Land Surveying Institute were covered by the Treasury (Krasnov, 1863: 404-405). At the same time, not all the Cossacks entered the higher educational institutions with special permanent openings offered for them. For example, N.I. Krasnov, the author of the first published historical and statistical description of the Don Host Land (Krasnov, 1863), graduated from the Nikolaev Academy of the General Headquarters in 1858 (Glinoyetsky, 1882: 95).

In total, 159 opennings in higher and secondary special educational institutions outside the Don Host Land were covered by the State in the beginning of 1860 (Krasnov, 1863: 405). The table below shows the openings' demand rate.

Table 1. Openings for the Cossacks in educational institutions outside the Don Host Land in 1860

Name of the institution	Number of openings	Number of taken openings (noblemen (including children of chief officers) + Cossacks)	The amount of money per each student
Cadet Corps	73	73+0	200 rubles.
Law School	3	3+0	450 rubles.
MikhailovskoeArtillery School	8	1+0	Unknown
Commercial schools	10	0+10	300 rub. (In St. Petersburg) /250 rubles. (In Moscow)

Medical-Surgical Academy	6	0+6	300 rubles.
Building School of Railways Management	2	2+0	300 rubles.
Mining Institute	6	6+0	350 rubles.
Mining Technical School	6	0+6	180 rubles. 95 kopecks.
Konstantinovsky Land Surveying Institute	3	0+3	350 rubles.
Kharkov University	30	10+10	175 rubles.
The class of the Don sergeants in St. Petersburg	12	12+0	100 rubles.
Total	159	107+35=142	

Source: Krasnov N. I. Materials for geography and statistics of Russia, collected by the officers of the General Headquarters. Don Host Land. pp. 402-405.

Thus, all openings were in demand, except in the Mikhailovskoe Artillery School and Kharkov University. In our opinion, the lesser attractiveness of these educational institutions was due to the lack of favorable prospects for their graduates. As we have shown in one of our previous works, the service in the Don Artillery was considered a disadvantageous occupation in the 1860's. Artillery officers received equal salaries with the cavalrymen but had many more responsibilities, and the shortage of artillery officers exceeded 50 % by 1870. In this situation, the class of Don Sergeants was fully recruited only due to the serious simplification of the entrance exams in comparison with the classes of regular artillerymen (Peretyatko, 2016: 109-116). There was no specialized Cossack class in the Mikhailovskoe Artillery School, and there were almost no Cossacks willing to enter it and to be able to do so on a general basis.

The situation wasn't much better for the Cossacks who graduated from the University. The specific conditions in the Don region in 1850's almost did not give obvious advantages to the people with a fundamental education. For example, another graduate of the Faculty of Law of Kharkov University, the future author of a number of books on Don's history, M.Kh. Senyutkin had to start his career as a clerk in the military administration (People of Don, 2003: 439). A.A. Karasyov, the regional leader of the nobility in 1892–1901 and M.S. Markov, the student of the Faculty of Law of Kharkov University in 1850, were sent to military service after returning to the Don region (People of Don, 2003: 192, 301). At that time the Novocherkassk Statistical Committee existed only on paper: its members, apparently, never held meetings during the period of 1843–1860, (there are no existing protocols) (Popov, 1901: 7). As a result, people with a university degree who did not want to serve as petty officials or to dedicate their entire lives to the military service, had to be employed in educational institutions, primarily in the Novocherkassk gymnasium. The future secretaries of the Don Regional Statistical Committee, A.M. Saveliev and S.F. Nomikosov, taught there after their return to the Don region in the late 1850's., as well as I.P. Pryanishnikov, the future editor of the "Donskie Voyskovye vedomosti" (People of Don, 2003: 340, 419, 431). But the salaries of gymnasium teachers were meager, and far from covering their needs (Artyunsky, 1907: 187). It's no surprise that under such circumstances, quite a few Cossack openings in Kharkov University were not filled completely at the beginning of 1860. This was facilitated by a skeptical attitude towards university education among some representatives of the Don elite: in particular, the father of S.F. Nomikosov, F.M. Nomikosov, a nobleman and Don Colonel, was against his son's admission to the university and required him to serve in the military (People of Don, 2003: 339-340).

Our table also shows that the education in the Don region had a rather peculiar class distribution. It represents that the openings for studies outside the Don Host Land were taken only by the children of noblemen and Cossacks. Peasant children usually did not get education at all: according to N.I. Krasnov, despite the fact that the total number of peasants on the territory of the Don Host Land was approximately 300,000 people, there were only 52 children of peasants enlisted in the primary schools (Krasnov, 1863: 401-403). The situation with the clergy was somewhat more complicated. In the 1850's there were two religious schools in the Don region with

the total number of 375 students, exclusively children of the priests (Krasnov, 1863: 402). However, according to the church authorities, another 1,408 children from the Don region studied in other "free religious schools", obviously outside the Don Host Land (Krasnov, 1863: 402-403). All the students were from the clergy families: it was forbidden for ordinary Cossacks' children to enter theological schools (GARO. F. 55. Op. 1. D. 240. L. 9). Generally, the children of the priests usually preferred a religious career: only 92 students from the Don clergy received a secular education in 1859 (Krasnov, 1863: 403). As a result, the number of clergy in the Don region increased sharply in the 1860's in comparison with the previous decades. In 1835 the imperial authorities allowed the non-resident priests to serve in counties due to the lack of clergymen from the Cossacks, but at the beginning of 1860's Khopersky and Novocherkassk district authorities demanded to repeal this law. They stated that the number of Cossack priests became redundant, and the diocesan authorities would be forced to create artificial positions for them, if the vacancies occupied by the non-Cossack clergy were not open (GARO. F. 55. Op. 1. D. 70. L. 3-4; GARO. F. 55. Op. 1. D. 240. L. 21-23). Thus, peasant children in the Don region usually did not have the opportunity to prepare for admission to secondary schools and the children of priests usually preferred to receive education in theological schools, often located outside the Don Host Land. This trend can be proved by the following table, which reflects the chances of different classes' representatives to receive secular education within the Don Host Land in the late 1860's.

Table 2. Distribution of people received secular education in the territory of the Don Host Land according to their social estate in the early 1860's

Class	Total number (1857)	Number of children studying in secular primary educational institutions within the Don Host Land and in the Novocherkassk Gymnasium (1859)	In the Novocherkassk gymnasium (1859)
The nobles (including the children of the chief officers)	12 474	688	375
Clergy	5 949	92	15
Merchants and tradesmen	Permanent residence was forbidden	61	17
Cossacks	569 675	1 253	123
Peasants	287 179	52	-
People of different ranks	4 280	2	2

Source: Krasnov N.I. Materials for geography and statistics of Russia, collected by the officers of the General Headquarters. Don Host Land. pp. 215, 400-401.

As we can see, the nobility and the Cossacks were absolutely dominant among the people who received secular education within the Don Host Land at the end of 1850s. At the same time, both in the Novocherkassk Gymnasium, and in the general number of occupied openings for studies in the capital and neighboring provinces, there was only one common Cossack per three noblemen. But this general ratio strongly fluctuated depending on the specific specialty: only noblemen attended the training in military educational institutions and ordinary Cossacks chose medical and commercial education. As a result, the only educational institution outside the Don Host Land, with both noblemen and ordinary Cossack students was Kharkov University, wherein the proportion of members of these two groups was about the same. It should be noted that an ordinary Cossack with a gymnasium or even university degree was common for the Don region in 1850–1860's. In particular, the graduate of Kharkov University I.P. Pryanishnikov was the son of an ordinary Cossack (People of Don, 2003: 419). The famous Don statisticians I.V. Timoshenkov and F.K. Trailin, who graduated from the Teachers training faculty of the Novocherkassk

Gymnasium, were the natives of the villages (Mininkov, 2016: 10-17). This was also facilitated by the fact that education in the Novocherkassk High Gymnasium was free until 1861, and students from poor families received free education after 1861 (Artyunsky, 1907: 187). Some openings at Kharkov University were reserved only for "the children of the host Cossacks, without distinction of their origin, mostly poor" (Artyunsky, 1907: 196). We have to admit that secondary and higher education in the Don region was equally open for both representatives of the local elite and for ordinary Cossacks.

However, a relatively small number of ordinary Cossacks received education due to the insufficient number of places in the secular educational institutions. However, the official statistics should not mislead us. We will quote a line from the memoirs of V.D. Novitsky, who was the Don Ataman M.I. Chertkov's special assignments official. "Do not imagine, dear reader, that the Don Cossacks in the seventies were savages, uneducated and eating dead horse meat, as they were portrayed by the Russian people, unfamiliar with the Don region. The Cossacks seemed unusually individually-developed people, highly intelligent, adroit and literate. In our investigation, we had to question more than ten people as witnesses, the census deputies and all of them were 70 years old and more. All of them were literate and wrote their testimonies by themselves. The literacy in the Don Host developed by itself and existed even when the Ministry of Education's public spread of literacy spread was in its' 'cradle' (Novitsky, 1991: 59).

Indeed, among the public figures, historians and statisticians of the Don region in 1860's, along with people with higher and secondary education there were also those who did not get proper school and university education. For example, H.I. Popov, perhaps the most famous Don local historian, was taught by his grandfather, a well-off, literate and intelligent ordinary Cossack (People of Don, 2003: 408). One of the most prominent supporters of the preservation of the Cossack class privileges in 1860's, I.P. Ulyanov, was also born in a simple family (his father became an officer after the birth of his son), in his childhood he spent more time working in the fields than at school. He learned to read and write in the Ust-Medveditsky District School, but this did not prevent him from attaining the rank of Major-General and becoming a well-known researcher of the past and the present of the Don region (People of Don, 2003: 480-482).

As a result, a fairly small but socially active layer of intellectuals formed in the Don region by 1860's. The majority were the people who received a full-fledged higher or secondary secular education. In this context, we can refer to the most popular authors of the "Donskie Voyskovye Vedomosti" of the period when they were edited by I.P. Pryanishnikov. According to A.A. Volvenko, the articles by A.A. Leonov were the most published in this newspaper in 1861–1864 (Volvenko, 2015c: 97). Although A.A. Leonov belonged to the number of Don public figures of the older generation, he graduated from Kharkov University in 1830 (Volvenko, 2015d: 196). The Don newspaper that gained sudden popularity published the works of the young authors, who debuted on its pages during the editorial period of I.P. Pryanishnikov: the mentioned above graduate of Kharkov University A.A. Karasyov and the graduate of the Academy of the General Headquarters N.I. Krasnov (Volvenko, 2015c: 97). Thus, in the first half of the 1860's, the editor of the "Donskie Voyskovye Vedomosti" and its' most published authors got higher education outside the Don Host Land.

The close connection of the majority of representatives of the Don intelligentsia with the simple Cossacks, on the one hand, and the proximity of some people from the Don region to the capital society, on the other, have become, in our opinion, one of the reasons for the first full-fledged public discussion in the Don region, the discussion of the oppositioning conservative "Cossack men "and the pro-government liberal "progressists". One of the first researchers of the Don region social movement of 1860's, V.N. Korolyov drew attention to the fact that the representatives of the simple Cossacks and the small nobility prevailed among the "Cossack men" (the difference between them (for example, in the case of I.S. Ulyanov) was almost not noticeable). The highest Don elite, especially the rich and authoritative Krasnovs dominated among the "progressits" (Korolyov, 1991: 229). We disagree with V.N. Korolyov's conclusion that the members of the "Cossack men party" were unfamiliar with the Russian society, and people who got higher education outside the Don Host Land usually supported the "progressists" (Korolyov, 1991: 229).

We quotate a line from the article by A.A. Karasyov, characterizing the situation in the Don region in the early 1860's. «It was asserted that there is a government project, according to which the class of the so-called civilian Cossacks is formed in the Don region, and they will not be in the

compulsory military service as long, as it has been so far. The strong and numerous party of "Cossack men", including many members of the local aristocts and the intelligentsia, arose quite noticeably, and carried away the whole society, except for very few opponents. <...>. About simple Cossacks, the inhabitants of villages and farms, there is nothing much to say: there are no words, contrary to the general mood that can be said and which will not cause the accusation of betraying the legends of the ancestors and the country's benefits" (Karasyov, 1896: 570). Indeed, the intellectuals, people with higher education, not only often quite shared "Cossack men"'s points of view, but also acted as public leaders for the ordinary Cossacks.

For example, during the preparation of the new Regulations on the Don Host in the early 1860's, it was decided to turn to the representatives of the stanitsas and the graduate of Kharkov University, I.P. Pryanishnikov was elected the deputy from Novocherkassk. At the same time, he drafted a "Cossack men" document, introducing a number of fundamental changes to the initial government draft of the Regulations (People of Don, 2003: 420). The archival materials research showed that the text of this document was very close to the Novocherkassk District deputies' final review of this government project, and, obviously, it formed its basis (GARO. F. 55. Op. 1. D. 70. L. 1-10). Thus, the deputies from other villages supported the ideas, originally formulated by a person with a higher education, who studied for several years outside the Don Host Land and who was familiar with the Russian society, but still remained a convinced "Cossack man". It is interesting to note that the draft of the Novocherkassk District deputies' recall to the government project is currently kept in the fund of H.I. Popov in the GARO (GARO. F. 55. Op. 1. D. 70). H.I. Popov also participated in the discussion on the new Regulations, not only presenting the Preobrazhenskaya village, but also editing the proposals of the Khopersky district deputies (People of Don, 2003: 409). The materials for the preparation of these proposals, which were mostly of the "Cossack men" character, are also kept in the fund of H.I. Popov (GARO. F. 55. Op. 1. D. 240). Let's pay attention to the fact that H.I. Popov collaborated with the "Donskie Voyskovye Vedomosti" quite regularly when I.P. Pryanishnikov was the editor. (Volvenko, 2015c: 97). There he published a programmatic "Cossack man" article "Cossack's thoughts on the Cossacks over the contemporary rumors" (H.P., 1863: 2-3). Given the extremely small number of the Don intelligentsia, we can confidently talk about the existence of a certain contact between I.P. Pryanishnikov and H.I. Popov. They didn't only defend the "Cossack men's" ideas in the press, but also acted as the initiators of the "Cossack men's" criticism on the governmental draft of the Regulations on the administration of the Don Host.

Unfortunately, the question on the role that the specific individuals played in the preparation of the new Regulations was considered neither by the historian of "Cossack men" A.A. Volvenko (Volvenko, 2014: 12-20), nor by the researcher of the activities of the Don Codification Committee (the office for the new Regulations) R.G. Tikidjyan (Tikidjyan, 2014: 95-98). Therefore, we can not yet say what role other representatives of the Don intelligentsia played in the district deputies' environment, including those who received secondary and higher education. However, it can be confidently asserted that the "Cossack men" ideas were widely disseminated in the periodical press, and as a result, the Imperial authorities even demanded "to stop publishing articles in which the government orders and the actions of officials are being disassembled" in the Don region (Volvenko, 2015d: 200). The most important newspaper to publish the "Cossack men"'s ideas was, of course, the "Donskie Voyskovye Vedomosti", edited by their "party member" I.P. Pryanishnikov. In particular, A.A. Karasyov whose works were regularly published on the pages of this edition, sympathized for the "Cossack men ideas" (Volvenko, 2015d: 203). He could not be accused for not knowing the Russian society: during his studies in Kharkov, the future Don writer even collaborated with the local theater, he wrote a patriotic play that was later performed on its stage (People of Don, 2003: 190-191). A.A. Karasyov was also accused of the fact that he participated in the creation of the handwritten newspaper "Budilnik" in the early 1860's, that openly propagandized "Cossack men" views. Although A. A. Karasyov rejecteded this accusation, he mentioned this newspaper in his later articles, demonstrating a certain familiarity with its' confidential information. The Don region author linked the publication of "Budilnik" with A.A. Korsun, another graduate of the law faculty of Kharkov University from the older generation, who served for a long time in the Caucasus (Volvenko, 2015c: 95).

It should be stated that V. N. Korolyov's thesis on the comparative lack of education of the "Cossack men" and their lack of knowledge about Russian society has nothing to do with reality.

The representatives of the Don intelligentsia (many of them, like A.A. Karasyov, A.A. Korsun and I.P. Pryanishnikov had a higher education) were the core of the "Cossack men". It is true that people like H.I. Popov and I.S. Ulyanov sided with the “Cossack men” and they did not finish school, but it is difficult to consider these authoritative researchers of the Don region as people who are not well-educated or unfamiliar with the Russian lifestyle. If we are to associate their social position with their education, we should pay attention to another detail: both A.A. Karasyov and I.P. Pryanishnikov finished the Novocherkassk Gymnasium and both of them left the Don Host Land to study at the University in their adulthood (People of Don, 2003: 190, 419). H.I. Popov and I.S. Ulyanov received their education in their native villages (People of Don, 2003: 408, 480-482). In our opinion, all these authors formed their individuality in the Don region, and believed themselves to be primarily Cossacks, and secondly Russian. In particular, H.I. Popov emphasized that "the history, the way of life of our ancestors developed a lot that other Russian classes do not have” and insisted on the Cossacks' right to defend their privileges, "acquired by our ancestors, at the high price of ... blood" (Kh. P., 1863: 2-3). Although other supporters of the "Cossack men" ideas did not make such frank statements, their texts are characterized by the idea of a certain primacy of the interests of the Don Host and the Cossacks over the interests of other social groups and state institutions. For example, the deputies from the Novocherkassk district (including I.P. Pryanishnikov) demanded to remove article 77 from the draft of the Regulations of the Don Host that allowed the non-residents to settle on the territory of the Don Host Land, stating this to be the desire of the Cossacks (GARO. F. 55. Op. 1. D. L. 40b-5). A.A. Leonov stated that the right to decide whether to accept a particular person into the Cossacks or not, historically belongs only to the Don Host, and this order should continue to exist (Volvenko, 2015d: 197).

It was this preference of the interests of the Don over the interests of Russia that caused a sharply negative reaction of the "progressists". N.I. Krasnov, a supporter of their "party", proving the wrongness of their opponents, wrote: "One must not be unaware that the rights and privileges of the Don population do not bring any *general benefits* (the cursive is ours – A.P., T.Z.)" (Krasnov, 1863: 232). His father, A.I. Krasnov, who shared this point of view, wrote in his programmatic article "On the National Character in the Don Host" that "the Cossack service is needed for the whole Russia and not only for the Don Host" (Krasnov, 1862: 348). Moreover, at the end of his text the Cossack general asserted that Don represents an integral part of Russia, populated by Russians, and there is no sense "to keep it apart, to block all the ways and separate it from homeland" (Krasnov, 1862: 355). Thus, the Russian self-identification prevailed over the local Cossack way among the "progressists" (unlike the "Cossack men") and they certainly placed the interests of Russia above the interests of the Don Host and the Cossack class. N.I. Krasnov associated this with the "progressist" education: according to him, those Cossacks, who studied not only outside the Don Host Land, but in Moscow and St. Petersburg were mostly sympathetic to the "progressist" ideas (Krasnov, 1863: 231). Thus, the split in the Don intelligentsia based on the educational principle in 1860’s did not occur as V.N. Korolyov suspected. People with higher education played an active role in both the "progressist" and "Cossack men" camps, but the graduates of "democratic" Kharkov University prevailed among the "Cossack men", while the "progressist" ideas were supported by the graduates of more prestigious higher education institutions located in the capital cities (for the Cossack elite students). In particular, M.I. Krasnov (who graduated from the Imperial School of Law as we mentioned above) and N.I. Krasnov (graduate of the Academy of the General Headquarters) were the active "progressists" (Volvenko, 2015c: 100-104).

We would like to pay attention to another fact. At the beginning of this article, we stated that in the 19th century it became a tradition in the Krasnov family to send their children to study outside the Don Host Land to obtain secondary education. We also noted that A.P. Chebotaryov, who later defended the interests of the "progressists" in the Military Ministry (Volvenko, 2015a: 106-114), got his secondary education at the boarding school at Kharkov University. Thus, these "progressists" were formed as individuals in Russian Gymnasiums, Cadet Corps and boarding schools, surrounded by non-Cossack background children and teachers. It is not surprising that the interests of the Don Host were as valuable to them as for the "Cossack men". They didn’t follow the conservative trend that was popular in the Don society of 1860’s, but the liberal-reformist trend, applicable to the Russian society as a whole. And not only the "Cossack men", but also some later Don historians of the conservative direction, accused the capital part of the local elite of the oblivion of the true interests of the Don Host (Savelyev, 1917: 41-42).

5. Conclusion

It should be noted that the system of education of the Don Cossacks in the 1850–1860's had a number of very specific features. First of all, it included educational institutions both within the Don Host Land and far beyond its boarders: special openings were reserved in colleges and universities in Kharkov, Moscow and St. Petersburg for the Don natives. Since there were no military schools on the Don, and only several officers finished the Novocherkassk Gymnasium, the Mihailovsky Cadet Corps of Voronezh became the basic military school for the Don Cossacks, initiated by the Ataman M.G. Vlasov. The number of Cossacks who received education in other provinces was quite significant: at the beginning of 1860's, there were 532 students in the Novocherkassk Gymnasium and 142 students were receiving secondary and higher education in the institutions outside the Host Land at the state expense. Kharkov University played the greatest role in the history of the Don region. The university graduates were at the forefront of journalism on the Don, their work advanced the Don Regional Statistical Committee to become a scientific institution, and the former students of this university I.P. Pryanishnikov, A.A. Karasyov, A.A. Korsun and A.A. Leonov were among the participants in the public discussions of the early 1860's. Thus, despite the lack of higher educational institutions in the Don region, people with a university degree played a significant role among the local intelligentsia.

Many ordinary Cossacks were among these men. Education in the Don region was based on the class division: it was difficult for the children of peasants to get education, the children of the priests usually preferred to enter theological schools and the Cossack noblemen had more chances to send their children to secondary and higher educational institutions than for the majority of the Cossacks. However, nobles usually preferred military service, and due to this some civil departments openings, even in higher educational institutions, were occupied by ordinary Cossacks. In Kharkov University, the ratio of children of noblemen and common village people was 1 to 1 in the early 1860's. In fact, taking into account the free education in the Novocherkassk Gymnasium and the existence of state-paid vacancies in higher educational institutions, education for ordinary Cossacks was more a matter of desire than material opportunity or their class status.

As a result there was a close connection between the Cossack intelligentsia and the bulk of the Cossack class. In the early 1860's the majority of the Don society was in opposition to the government reforms, supporting the so-called "Cossack men" ideas. It was the representatives of the Don intelligentsia who led the ordinary Cossacks. In particular, I.P. Pryanishnikov was elected a deputy from Novocherkassk during the discussion on the new Regulations on the Don Host, and the document he compiled formed the basis for the program of all the deputies of the Novocherkassk District. In the Khopersky District, a similar role was played by H.I. Popov, although he did not have a higher education. He was ideologically close to I.P. Pryanishnikov and published his ideas on the pages of " The Donskie Voyskovye Vedomosti", edited by the latter.

However, the Cossack majority was supported mainly by that part of the intelligentsia who received secondary education in the Don region. The core of the party of their ideological opponents, the "progressists", were the Krasnovs', with a tradition to send their children to study in St. Petersburg, Moscow or Kharkov. The "Progressists" blamed the "Cossack men" for preferring the Don interests over the interests of the whole of Russia, and argued that the privileges of the Don Cossacks should be abolished if they do not bring any general benefit. It is easy to trace the influence of their Russian education with the lack of the Don regional specificity. Thus, the very system of education of the Don Cossacks indirectly prepared the discussion of the "progressists" and "Cossack men", and thus had a significant impact on the social life of the Don region.

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