

ISSN 2334-847X (Printed)  
ISSN 2334-8496 (Online)



INTERNATIONAL JOURNAL OF  
**COGNITIVE**  
**RESEARCH**  
IN SCIENCE, ENGINEERING AND EDUCATION

**I J C R S E E**

Volume 3, Issue 1, June 2015.



ISSN 2334-847X (Printed)

ISSN 2334-8496 (Online)

**INTERNATIONAL JOURNAL OF  
COGNITIVE RESEARCH IN SCIENCE,  
ENGINEERING AND EDUCATION  
IJCRSEE**



**Volume 3, Issue 1, June 2015.**

## IMPRESUM

International Journal of Cognitive Research in Science, Engineering and Education (IJCRSEE)  
Volume 3, Issue 1, June 2015.

**Editor in chief:**

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**Publishers:**

**The Association for the development of science, engineering and education**

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Pivarska b.b., 18220 Aleksinac, Serbia

[www.vsvaspitacka.edu.rs](http://www.vsvaspitacka.edu.rs)

For publishers:

Dr. Lazar Stošić

Dr. Stojan Obradović

Print:

Aurora O. D. Vranje

Circulation:

200 copies

Translator:

Dr. Igor Petrović

**Indexed:**

Index Copernicus, DOAJ, SCIndeks, GIF global impact factor, CNKI, Turkish Education Index, SCIPPIO - Scientific publishing & information online, Journal Impact Factor, GoogleScholar, Dialnet, InnoSpace - SJIF Scientific, Harvard University Library, WorldCat, Open Academic, PUBDB DESY Publication Database, Journals Index (OAJI), InfoBase Index, J-Gate, Cabell's Directory, JOUR Informatics, Academic Journals Database, Sjournals Index, WorldWideScience Sources, Scientific Indexing Services (SIS), Cite Factor, UlrichsWeb, TIB-German National Library of Science and Technology, Academia.edu, DRJI, Science Central, Electronic Journals Library, Academic Keys, ETH-Bibliothek, BASE, Journal Seeker, Researchbib, SAIF Impact factor, getCITED, PBN, OAJ, LibSearch, JournalTOCs, HOTid, .docstoc, Scribd.

**Global Impact Factor for 2013=0.514, 2014=0.678**

**IC Journals Master List 2012 - ICV 2012: 5.31, - ICV 2013 - 6.76**

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## EDITORIAL

**International Journal of Cognitive Research in Science, Engineering and Education (IJCRSEE)** is an open access international peer reviewed multidisciplinary journal that publishes professional, scientific and review papers in the field of humanities, pedagogical sciences, psychology, IT, mathematics and other sciences. Editorial Board strives to provide a possibility for the scientists of different fields to publish the results of their research, technical and theoretical studies. IJCRSEE is multidisciplinary in approach, and will publish a great range of papers: reports of qualitative case studies, quantitative experiments and surveys, mixed method studies, action researches, meta-analyses, discussions of conceptual and methodological issues, etc. IJCRSEE publisher is The Association for the Development of Science, Engineering and Education.

The journal publishes articles in all areas of cognitive science, including studies of cognitive processes, emotions, perception, memory processes, thinking, problem solving, planning, training, studies of language and consciousness. The journal focuses on studies in the field of education, human performance and studies of fundamental cognitive skills in everyday life. The journal combines works in the field of psychology, artificial intelligence, linguistics, philosophy, computer science and neuroscience. The articles on the results of scientific research in various fields of cognitive science that concentrate on multidisciplinary audience are of top priority for the journal. The audience of our journal – is, in the first place, researchers in the field of cognitive science and related fields, including psychologists, educational researchers, anthropologists, philosophers, linguists, neuroscientists, programmers.

IJCRSEE receive a [Global Impact Factor for 2013=0.514, 2014=0.678](#) and [IC Journals Master List 2012 - ICV 2012: 5.31, ICV 2013 - 6.76](#).

IJCRSEE has regular sections: Original Research, Review Articles, Studies and articles, Book Reviews, Case Studies, and is published twice a year. This journal provides an immediate open access to its contents, which makes research results available to the public based on the global exchange of knowledge.

The primary **aim** of IJCRSEE is to provide relevant scientific results for novice and expert scholars and to enable researchers to publish and share their work with the academe throughout the world. The aim of the journal is to promote and strengthen the quality of research in the field of science, engineering and education.

The journal publishes articles in all areas of cognitive science, including studies of cognitive processes, emotions, perception, memory processes, thinking, problem solving, planning, training, studies of language and consciousness. The journal focuses on studies in the field of education, human performance and studies of fundamental cognitive skills in everyday life. The journal combines works in the field of psychology, artificial intelligence, linguistics, philosophy, computer science and neuroscience. The articles on the results of scientific research in various fields of cognitive science that concentrate on multidisciplinary audience are of top priority for the journal. The audience of our journal – is, in the first place, researchers in the field of cognitive science and related fields, including psychologists, educational researchers, anthropologists, philosophers, linguists, neuroscientists, programmers.

The scope of IJCRSEE is deliberately broad in terms of both topics covered and disciplinary perspective:

- Cognitive pedagogy,
- Cognitive psychology,
- Psycholinguistics,
- Cognitive linguistics,
- Cognitive cultural studies,
- Cognitive neurophysiology,
- Cognitive sociology,
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- Computer studies,
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IJCRSEE has an international editorial board of eminent experts in their field from Russia, The Former Yugoslav Republic of Macedonia, Hong Kong, Greece, Serbia, Australia, United Kingdom, USA, Turkey, Nigeria, Bulgaria, Romania, Croatia, Kingdom of Saudi Arabia (KSA), India, China, Thailand, Malaysia, Morocco, Jordan, and Iran. We are confident that IJCRSEE will attract a great number of editors, eminent scientists in the field. The selection will be based on the activities of the editors and their desire to contribute to the development of the journal.

IJCRSEE provides a platform for academics and scientists professionals to refer and discuss recent progress in the fields of their interests. Authors are encouraged to contribute articles which are not published or not under review in any other journal.

Each submitted manuscript is evaluated on the following basis: the originality of its contribution to the field of scholarly publishing, the soundness of its theory and methodology, the coherence of its analysis, its availability to readers (grammar and style). Normal turn-around time for the evaluation of manuscripts is one to two months from the date of receipt.

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- Accept the manuscript without further revision
- Accept after revision
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Proof Editor confirms that the manuscript has gone through all the stages and can be published.

This issue has 17 articles (14 original research and 3 studies and article). Our future plan is to increase the number of quality research papers from all fields of science, engineering and education. The editors seek to publish articles from a wide variety of academic disciplines and substantive fields; they are looking forward to substantial improvement of educational processes and outcomes.

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**Global Impact Factor for 2013=0.514, 2014=0.678**

**IC Journals Master List 2012 - ICV 2012: 5.31, ICV 2013 - 6.76**

**International Journal of Cognitive Research in Science, Engineering and Education  
(IJCRSEE)**

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# STUDENTS WITH VISUAL IMPAIRMENTS: BRAILLE READING RATE

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Received: February, 25.2015.

Accepted: April, 06.2015.

Original Article

UDK 159.946.4.072-057.875

**Abstract.** A comparison reading performance was done between 8 students who are using Braille and 14 students who are using enlarged print to read. Reading performance was determined using reading rate (words per minute, wpm). Reading rate results showed no significant difference ( $p > 0.05$ ) between those using the Braille ( $16.62 \pm 11.61$  wpm) and those using the enlarged print ( $27.21 \pm 24.89$  wpm). This study has shown that Braille reader students read at lower reading rate compared to print reader students with visual impairment.

**Keywords:** *Students with visual impairment, Reading, Braille reading rate, Braille literacy.*

## 1. INTRODUCTION

Reading is essential in the context of education. Education is generally understood to encompass literacy, defined as “the ability to read and write” (Concise Oxford Dictionary, 2009). For individuals who do not have easy access to print materials because they are visually impaired (that is, those who are blind or have low vision) this process of acquiring knowledge through reading requires additional effort and accommodations. Braille literacy is of critical importance to the achievement of independence and employability of those who are blind or visually impaired (Ryles, 1996).

Globally, Braille was and still is the primary reading method for blind people to access information and education independently. Braille is a tactile writing system, where each character is represented by a combination of one to six raised dots. A dot may be raised at any of the six positions to form 64 possible subsets. Differently from visual

processing, which enables simultaneous and parallel perception of text, the tactile modality offers a successive input and imposes a sequential nature of reading (Pring, 1984).

### *Reading Braille*

There is no uniformed way of reading Braille. Good Braille reading is characterized by fluid movement across the page. New Braille learners face the difficulty of combining body postures with spatial and tactile tasks, often becoming confused about keeping their hands on the same line and losing their position (McLinden and McCall 2002). Wormsley (1979) divided hand movement patterns into two major categories: one-handed and two-handed reading. Proficient readers of Braille typically read with two hands, starting the line with the left hand and finishing it with the right (Whittle, 2005). The most commonly taught technique is to use all four fingers of both hands side by side along a single line. Even though the focus is still placed on one Braille cell contacted with one finger, the use of the eight fingers provides spatial awareness of the line being read and it is supposed to make reading quicker and more efficient (Miller 1997).

It has been noted that reading speeds among early Braille readers, whether they were children or adults recently visually impaired, are often considerably slower than those of their print reading peers. The time for the identification of a word includes the precise time needed to perceive each letter that forms a word plus the necessary time to integrate this previously stored information and thus identify a whole word. This double process explains the reduced reading speed rates shown by Braille readers. In the case of Braille reading, tactile fixations are in use, which cannot be compared to visual fixations, since tactile reading involves fingers, hands,

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and arms. Moreover, whereas ocular movements allow sighted persons to skip some of the words of the text (although there is some fixation on most of them), people who are visually impaired cannot do the same; their fingers must necessarily pass over all the characters on a line (Simon and Huertas 1998).

In a study comparing the reading rate (speeds) of blind and seeing adults “the average print-reading rate ranged from 30% (oral reading) to 60% (silent reading) faster than the average Braille-reading rate for the various reading tasks” (Wetzel and Knowlton, 2000). On average, Braille readers read at about half the speed of print readers, at about 150 words per minute (Pring, 1984). Earlier research, also demonstrated that Braille reading rates are not constant, but vary widely, depend on the purpose of the reading task (Knowlton and Wetzel, 1996). Further research demonstrated that Braille and print reading rates varied in a parallel manner, with the Braille rates always slower than the print rates, but affected to a similar degree by the task (Wetzel and Knowlton, 2000). The disparity between the reading rates of sighted students and students with low vision increases as students’ progress to middle school and high school (Corn et al., 2002).

#### *Critical factors for the development of Braille literacy skills*

Previous research indicated that the age at which Braille is learned may affect the speed at which Braille is processed (Mousty and Bertelson, 1985); that is, children who were taught Braille before the age of 10 generally became faster readers.

The lack of tactual acuity is a problem faced by students learning to read through Braille and contributes to slow reading times compared to other print readers. However, through experience and training, most visually impaired students can overcome this problem.

Instructional strategies have been identified that can increase the reading rates of students with visual impairments. From the available literature, it is readily understood that the daily instruction ranging from one to two hours is critical for the development of Braille literacy skills (Corn and Koenig, 2002). Also, the research has shown that visually impaired students are at risk of advancing in school with poor, fragmented Braille skills if they have not had high-quality instruction during their elementary school years (Koenig and Holbrook, 2000). Therefore, continued

intensive instruction in writing and reading from a teacher who knows Braille is required throughout the elementary school years (Emerson et al., 2009).

The purpose of the study presented here was to measure Braille reading rate, and to compare it with reading speed of visually impaired students who use enlarged print. The second objective was to analyze the opinion of special educators about factors which may influence on Braille literacy of students with visual impairment.

## **2. MATERIALS AND METHODS**

### *Participants*

The survey was conducted on a sample composed of 22 students and 5 special educators from public school for rehabilitation of children and young people with visual impairment “Dimitar Vlahov” in Skopje, Republic of Macedonia. A total of 8 (36%) Braille readers were tested, as well as 14 (64%) visually impaired readers who use en-larged print for the control group. The average age of the Braille readers was 13.16+1.47 years (ranged from 11 to 15), while the average age of print readers was 11.5+2.22 years (ranged from 9 to 16). There were 15 (68%) females and 7 (32%) males.

### *Materials and procedure*

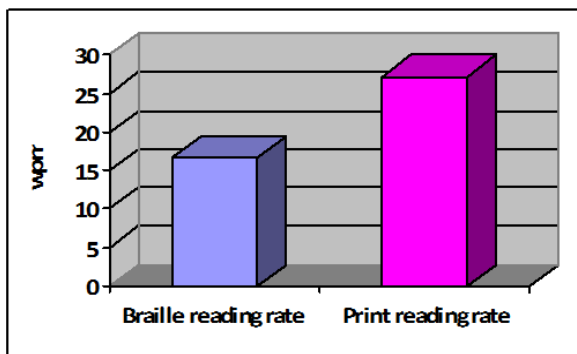
Reading performance was determined using reading rate (words per minute, wpm). Reading speed of Braille and print readers was measured using short unfamiliar story from the textbook for first grade, consisting of 40 words. The print size of the text varies depending on the students near acuity. The print size chosen for each student was one size bigger than the near acuity. This is to make sure that vision is not a factor that causes slower reading rate. The same texts that have been converted to Braille format were used for Braille reader. The decision of which hand and which fingers to use for reading and the reading method was left to the student. The participants were allowed to explore the text briefly before reading. Then, the students were asked to read aloud (oral reading) and the reading time as well as the number of errors was recorded. The words that were missed or read incorrectly were counted as error. From these data, reading rate was computed in words per minute (wpm).

A significant role for special educators is to address their students' slow reading rates and attitudinal barriers through the use of appropriate instructional strategies. For that reason, five special educators were asked to state which activity they use for enhancing the learning of Braille among students with visual impairment.

### 3. RESULTS

The reading rate of the students who are using Braille and print to read is shown in Figure 1. It can be noticed that most of the Braille readers have lower reading rate compared to the print readers. The range of reading rate for the Braille readers is from 7 to 30 wpm with mean  $16.62 \pm 11.61$  wpm. The reading rate for print readers is from 4 to 83 wpm with mean  $27.21 \pm 24.89$  wpm. The two sample test shows that the difference in the reading rate between Braille and print readers is not significant ( $t=1.354$ ;  $p>0.05$ ).

Figure 1. Braille and print reading rate



On the first question: For which school subject you have books converted to Braille format, the answer of the special educators are presented on Table 1.

Table 1. School books converted to Braille

School subject	Grade				
	I	II	III	IV	V
Macedonian language	yes	yes	yes	/	/
Mathematic	/	/	/	/	/
Nature	/	yes	/	yes	/
Society	/	yes	/	yes	/
Music	/	/	/	/	/

Although the school has a total of 341 Braille books, most of them are not used because they are old and not in line with the new school curriculum. Unfortunately, the school has no Braille books for all subjects (Table 1).

According the answer of special educators, students overcome Braille letter at:

- Second grade (2 special educators) and
- Third grade (3 special educators).

Special educators' opinions about the way they can enhance the learning of Braille alphabet among students with visual impairment are displayed in Table 2.

Table 2. Enhancing the learning of Braille

Activity	N
Exercises for development of fine motor skills of hands	4 SE*
Individual work with student	2 SE*
Using Braille literature	5 SE*
Additional teaching hours	1SE*

### 4. DISCUSSION

Individuals tend to read Braille at a slower rate than print readers read print (Emerson et al., 2009; Wetzel and Knowlton, 2000). In this study, it was found that most of the students who are using Braille, read at a much lower speed compared to those who are using print. But, this finding differs from a previous study by Legge et al. (1999) who showed that the Braille and print readers have comparable reading rate. Also, according to Erin (2003), rapid Braille readers can decode as quickly as print readers.

The mean reading rate of Braille and print readers found in this study is much lower than those reported in the past. For example, in the 1960s, Lowenfeld, Abel and Hatlen (1969) found that typical rates of Braille reading were 84 wpm in local schools and 72 wpm in residential schools fourth-grade and 149 wpm and 116 wpm in local and residential schools, respectively, in the eighth grade. Foulke (1991) found that the mean Braille reading rate for adults is about 100 wpm. Research investigating the reading rates of expert adult Braille readers reported a mean oral reading rate of 135.9 wpm (Wetzel and Knowlton, 2000). In another study, Wolffe (2000) stated that for any job in which literacy is used; a minimum reading rate of 150 words per minute (wpm) should be expected. Various studies have found that Braille readers do not acquire reading rates that meet Wolffe (2000) estimate.

Legge et al. (1999) found that context can increase the reading rate up to 40%. Like

most study in the past, this study used related sentences to measure the reading speed. So, the reason of lower reading speed is not the text that was used in this research.

Hasbrouck and Tindal (2006) studied oral reading fluency and developed a baseline to help teachers identify students needing specific instruction to improve oral reading fluency.

Perceptual factors limiting Braille reading speed are poorly understood, partly because of the lack of accurate, standardized testing methods. The lack of tactual acuity is a problem faced by people learning to read through Braille and contributes to slow reading times compared to other print readers. However, by experience and training, most visually impaired children can overcome this problem. In this study, four of five special educators indicate that the “exercise for developing fine motor skills of hand” can enhance the learning of Braille alphabet.

Teachers often accommodate their students’ lower reading rates by reducing assignments or providing auditory alternatives. The reading speed of Braille readers and those who access printed material can be improved by daily reading practices and repeated-reading strategy. In this study, only one from five special educators thinks that “additional teaching hours” can enhance the learning of Braille.

Although the legislation in some countries supports people with visual impairment to have access to materials in their preferred format, e.g. the availability of Braille material is affected by the extra expense that the production of Braille books may incur. The situation in our country is not good because the available Braille books are restricted only to few school subjects.

## 5. CONCLUSION

The risk of poor academic performance and the potential for frustration that is associated with slow reading speed has been a topic of concern for students with visual impairment for more than a decade (Corn et al., 2002). Although most of the studies about Braille reading rate had many drawbacks, they all indicate that students’ reading performance was poor for competing in academic classes and for future employability. These measures can help teachers determine each student’s individual needs, so as to adjust the instructional program accordingly (Lusk and Corn, 2006).

Reading and learning to read Braille is often slower than reading print and specific skills must be learnt. Reading Braille can be hindered by several factors. Early intervention and the introduction of tactual discrimination exercises can help overcome many problems associated with learning to read Braille, developing children’s touching skills and making it easier to identify Braille cells.

Low reading rates affect students’ performance and can result in greater frustration and less time spent reading (Carver, 1990).

### Conflict of interests

Author declare no conflict of interest.

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# AUGMENTED REALITY AS A TEACHING TOOL IN HIGHER EDUCATION

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Received: May, 14.2015.

Accepted: June, 01.2015.

Original Article

UDK 004:378.147

**Abstract.** Rapid development of the technology has influenced its inevitable entrance in the learning processes. Teachers are often challenged to use the appropriate educational technology in the process of teaching in order to ease the learning process of students. Introducing new technology in the teaching process should utilize the new technology in any possible way in order to assist the teacher in transferring the knowledge and assist the students in grasping that knowledge. This paper should emphasize the benefits of using augmented reality in higher education, by measuring outcomes of the students which used augmented reality as a teaching tool in the courses. Results from the survey imply that students show significantly improved results in increasing the interest, understanding and interiorizing the learning material. University teachers found that using augmented reality is significantly improving the learning process of students and their teaching process in a pedagogical and technical sense.

**Keywords:** *Augmented reality, Teaching techniques, Modernization.*

## 1. INTRODUCTION

Today's Europe is facing serious changes which are equal by their significance to the industrial revolution. Rapid growth of the technology is influencing changes in everyday life of the people. Processes of globalization are widening societal horizons and causing economic competitiveness. The only way to survive in the contemporary societies and to sustain economic competitiveness is active participation in lifelong learning process, by upgrading current competences and obtaining new competences, needed in the labor market.

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Representatives of the modern pedagogy for the last five decades are emphasizing the fact that education needs transformation in order to meet the demands of the contemporary living (European Commission, 2000). It is wrong to think that technology which has entered in all of the spheres of everyday life should be excluded from the process of education. Today, we are still facing with students resistance and indifference to learn by old, ex-cathedra methods of teaching. Modern students are digital natives which use technology in their everyday activities, while education has kept the tendency to treat the students as an object in the teaching process, without any active role – which is contradictory to the main objective of the lifelong learning process (European Commission, 2011).

In the Memorandum for lifelong learning (2000) issued by European Commission, the third key message of the document, is referring to Innovation in teaching and learning. Teaching and learning methods and contexts should recognise and adapt to a highly diverse range of interests, needs and demands of the people. Enabling individuals to become active learners implies both improving existing practices and developing new and varied approaches to take advantage of the opportunities offered by ICT and by the full range of learning contexts. ICT-based learning technologies offer great potential for innovation in teaching and learning methods, although practicing educationalists insist that, to be fully effective, these must be embedded in 'real time' contexts and relationships between teachers and learners. The capacity and the confidence to develop and practice open and participatory teaching and learning methods should therefore become an essential professional skill for educators and trainers, in both formal and

non-formal settings ([Memorandum for life-long learning \(2000\)](#)).

Europe's and world's educational systems are allowing the technology to take big part in the process of teaching and learning by offering different types of learning: distance and e-learning, video, television and web conferences, webinars, responsive teaching, etc. Republic of Macedonia is facing those challenges as well, and as if from recently has obligated teachers from elementary and secondary schools to use educational technology with at least 30% in their teaching ([Ministry for education and science of Republic of Macedonia, 2006](#)).

## 2. USING AUGMENTED REALITY AS A TEACHING TOOL

According to [Azuma \(1997\)](#), Augmented Reality (AR) is a variation of Virtual Environments (VE), or Virtual Reality as it is more commonly called. In these so called Virtual Environments the user is completely surrounded by a synthetic environment. In that state, the user can not perceive the real world and the real environment that surrounds him/her. On the contrary, the Augmented Reality (AR) allows the user to perceive the real world while the virtual elements are superimposed upon or composited with the real world ([Sutherland, 1968](#)). In this manner, the augmented reality is enriching user's perception of the reality rather than totally replacing it like in the case of the virtual environments. The ultimate goal of the AR is to convince the user that the two environments, real and virtual, coexist. According to [Azuma \(1997\)](#) augmented reality presents a system with the following characteristics: (1) combines real and virtual world, (2) interactive in real time and (3) registered in 3D ([Azuma, 1997](#)). In that regard, the AR improves our perception of the reality and the real world that is around us, and in the same time it enhances the way we interact with it. The idea behind the technology is to present the user with the ability to perceive information that using the normal natural senses are not directly detectable. Still, the enhancement of the user's reality should help the user in completing regular real-world tasks and activities.

The technology of Augmented Reality can be used to augment all of the user senses, although the vast majority of applications are focused only to the sight by combining virtual graphics with the reality the users sees. There

are available researches and application of haptic devices that augment the tactile sense of the user, while the augmentation of sound and smell are still limited.

In this paper the focus is only on vision as most important aspect in learning and education. By augmenting the student's vision we enhance their ability to visualize what they are trying to learn.

When creating an AR system the basic dilemma is how to achieve the needed mix of reality and virtual objects. Basically, two options are available: optical and video technologies. Each has particular advantages and disadvantages ([Wagner, Schmalstieg, 2007](#)). By using standard Head-Mounted Displays (HMD) an augmentation of the vision is easily achieved. The standard opaque HMD do not allow a direct view to the real environment because they use video technologies where both the real and virtual images are presented as video signals. On the other hand, see-through HMDs enable the user to visually perceive reality that surrounds, complemented with virtual objects designed using optical or video technology. The optical see-through HMD operate by having laid optical devices for combining sight of the user with the virtual video objects in front of the user's eyes. These combining devices are partially transparent, thus the user is able to see straight through them, looking at the real world. These combining devices are partially reflective, thus the user is able to see virtual images that are reflected by them. This approach is similar to the technology of the Head-Up Displays (HUD). Therefore, optical see-through HMD devices are sometimes described as "HUD mounted on the user's head". HUD devices were first used by the pilots of fighter jets, with that difference that in those cases the combining devices were placed on the protective glass of the cabin of the aircraft rather than on the user's head. HUD devices today have a massive application in the automotive industry. During 2013, out of 87.5 million vehicles produced in the world, one million vehicles have built in HUD device. According to PR Newswire, in the US, by the end of 2018 the total market for HUD devices will rise three times.

The only way to determine if an AR system is satisfactory is through the level of realism in the integration of augmentations and the reality. In order to achieve this set of challenges has to be resolved. The main challenges when using AR are focus, contrast, registration and occlusion. The challenge of determining the right focus is present in both

optical and video AR systems. When combining two video signals a common problem is combining the focus settings using the depth-of-field and the focus settings of the pine-hole model. This challenge can be overcome by using cameras with auto focus options and by rendering graphic objects simulating a limited depth-of-field (Yeh, Wickens, 2001). When using optical technology, the challenge of focus errors result from the fact that real objects are at different distances from the user and the virtual object are always presented at a fixed distance. If these distances are not aligned with the distances of the same objects in reality, then the augmentation will be out of focus or blurred.

The challenge of contrast is to match correctly the brightness of both virtual and real objects. Although this seems as an easy task, the challenge comes from the fact that the human eye is able to differentiate very large levels of brightness. This challenge is more present in optical devices, while in the video devices this challenge is easily solvable (Cobzas, Jagersand, 2003).

Registration presents the proper alignment of the virtual and real objects in regard to their interrelation and in regard to the surrounding environment. Registration provides the key element of persuading the user that both worlds coexist in the same space and time. In addition, the specific properties of the application of the AR demand different levels of precision in registration. For example in medicine and in engineering the levels of precision are highest and it is fundamental for the proper use of the technology. According to Breen (Breen et al., 1996), errors in registration are difficult to properly control because of the high accuracy requirements and the numerous sources of error.

Occlusion is the overlapping of virtual and real objects in the AR systems. The system should properly align and overlap the virtual and real object as the user's perception of their coexistence in reality. This is present in both video and optical AR systems. With the use of cameras determining depth or by properly preparing the scene this challenge can be resolved.

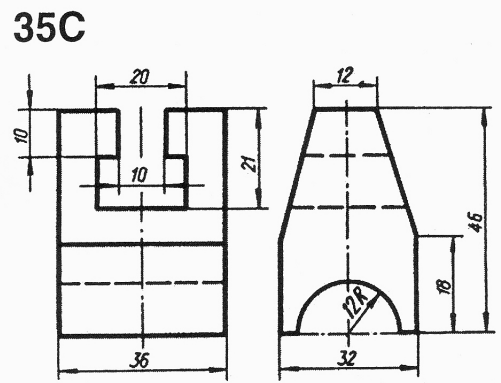
## 2.1. Teaching engineering graphics

For the purposes of the research, regarding the nature of the provision of one semester courses at university level, we found it most appropriate to test augmented reality as

a teaching tool among students and university teachers from the technical faculties from the biggest state university in Republic of Macedonia – “Ss. Cyril and Methodius” in Skopje within the courses in technical drawing, engineering geometry and graphics. This course called Engineering graphics is mandatory for almost every technical faculty at the private and state universities in the country because it represents foundation for engineering profession.

Among other theoretical topics which are processed in the course, practical exercises from all areas of geometry and engineering graphics are performed using a software tool for computer-aided design (CAD).

During the practical exercises, one of the key challenges for the teacher is to find out a way to assist the students in the process of visualization of objects presented in different spaces and shapes. A common task in this manner is for a specific shape given by two orthogonal projections to be visualized as a solid body.



Picture 1. Example of a student's exercise - the task is to create a solid body out of two given orthogonal projections

When this task is to be completed for a simple shape, than best way to assist the students in the process of visualization of object is by using wooden or plastic models. Still, this method is slow, time demanding and costly. Also, it is not suitable for larger groups of students since the result cannot be displayed using a LCD projector. Even though university teachers attempt to make this process as simple as possible by using the best existing didactic methods it is very common that number of students lose interest and become repulsive to the subject. As most common reason for this is the fact that majority of the students come from general high schools, only small portion of them have graduated from technical vocational schools. This means that most of them get in contact with geometrical shapes

and bodies in space for the first time.

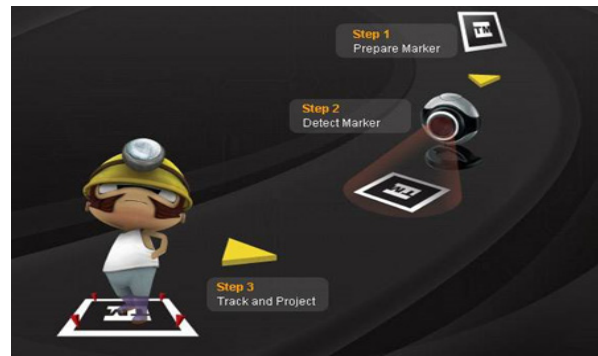
A constant strive of all teachers is to keep the attention of the students and their interest as much as possible. In order to do this, teachers must introduce innovative ways of executing the classes. In this digital day and age it is inevitable to turn towards ICT technologies to achieve this goal – that is assist students in understanding the space and how objects are placed in it. In this regard, the used tools are focusing on the visual presentation of the matter. In the end, this has to be done in an efficient and effective manner for both the teacher and the students.

The properties of augmented reality presented earlier in this paper are in line with these needs. An application designed on the basis of the AR technology can provide the teacher with the ability to visually present to the students a three-dimensional shape created out of its two orthogonal projections presented in the textbook.

There are various off-the-shelf software tools available for creating the AR application for this problem. They differ in the needed computer skills of the creator, as well as in the platform on which they can operate (Windows, Android or iOS). With that, the boundary of the devices used to create and utilize the application is no more present, meaning one can use a desktop computer, or a hand-held device like a smartphone or tablet. The system architecture is usually consisted of a computational device, digital camera and the desired software for previewing the result.

The solution can be created to be used in a prepared or unprepared scene. If the application is to be used in an unprepared scene than additional hardware devices for determining and tracking the position are needed, like gyroscopes, GPS receivers, compass etc. Still, such an application is mainly meant to be used in a classroom which means the prepared scene option is a better choice. In these cases the determination of the position and tracking is done using fiducial markers. Besides the determination of position and tracking, the marker is going to solve the challenges regarding registration and occlusion and it will provide the means of interaction between the users and the application. Best way is to use a robust black and white marker with characteristic shape (square or circle). This is determined by the software architecture algorithm for detection and tracking. The marker will be used as a trigger element, once induced in the camera's field of view it will trigger the system to recall the appropriate virtual object.

The final elements of the application are the virtual objects. They have to be created and stored in a database accordingly and mapped with a corresponding marker. The virtual objects can be 3D models, text, image or video (Rizov, Tashevski, 2015). For the purpose of this paper, 3D solid models were created using Autodesk AutoCAD and a corresponding animation of the 3D model was created using Autodesk 3D Studio.



**Picture 2.** The basic steps of augmented reality using markers

The augmentation of the reality happens according the diagram presented in Picture 2. Firstly the markers are prepared, than they are introduced into the field of view of the camera and after that the algorithm detects and follows the marker with superimposing the appropriate virtual element on it. As the user manipulates the marker the virtual element corresponds. The virtual element can be presented directly in the same plane as the marker or it can be projected at an offset from the marker. The camera in this diagram presents an input device. It may be an external hardware element, as the web cam to a desktop, or it can be integrated in the device, like the camera on a smartphone.

In this paper, the software application BuildAR of HITLAB with the ARToolKitPlus algorithm was used. This application is for windows environment only, but it presents an all-in-one solution, meaning the user can create the markers, create the AR scene, can edit it and can preview it. Also its algorithm is most suitable for squared black and white markers and provides easy and precise tracking while rotation and translation of the marker.



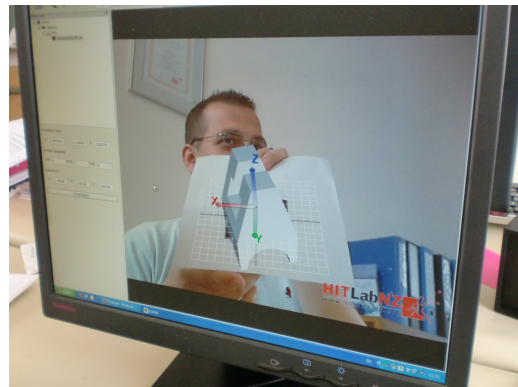
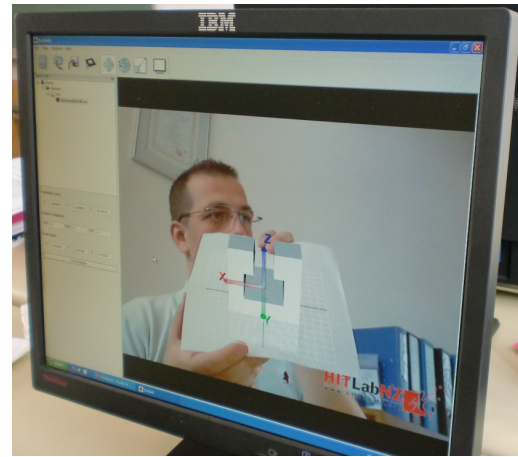
**Picture 3.** Displayed video signal from the camera

As mentioned previously, for the purpose of this research, the student's exercise presented in picture 1 is going to be used as given orthogonal projections out of which students need to create a 3D solid model. After starting the application on their desktop computer, students select the available video capturing device and in the field of view of the camera introduce the marker corresponding to the given exercise. After that the software detects the marker, identifies the corresponding 3D model from the database and recalls it.



**Picture 4.** Introducing marker to the camera's field of view

Then the software renders the 3D model over the marker, making it visible to the user. In this way the user's reality is augmented. The interaction between the user and the system is through movement of the marker. Students can move the marker or rotate it so they can see the solid object from all sides and angles.



**Picture 5.** Preview of the result of the shape in augmented reality

### 3. MATERIALS AND METHODS

The *main goal of the research* is to examine whether augmented reality used as a teaching tool is contributing towards improving the interest, understanding and interiorization of the learning material in the course *Engineering graphics* at higher education.

The *character of the research* is empirical and quantitative, because it is based on results from the test from the students, as well as from results gained from the questionnaires about student's and university teacher's opinions about the strengths, weaknesses and threats from using augmented reality as a teaching tool in higher education. It is also current, because it is treating the most actual theme in education – using ICT in the teaching process. The research may be considered as action research also, because it's revealing the ongoing changing situation of student's success in the course Graphic engineering in higher education.

This research implies using several *research methods*, which led to creating scientific conclusions: method of description, analysis, synthesis, induction, and generalization.

*Research techniques and instruments* used in order to obtain relevant data are:

- *Testing of skills* for orthogonal projections of a solid body from 2D to 3D (see picture 1) using test of skills with AutoCAD software on computer;
- *Inquiring*, using questionnaire from Likert type in order to found out the opinions of students and university teachers about the strengths, weaknesses and threats from using augmented reality as a teaching tool in the course graphic engineering. The *questionnaire for students* is consisted of 3 parts. The first part is referring to the strengths of augmented reality and is consisted out of 7 statements. The second part of the questionnaire is consisted with 7 statements referring to the weaknesses of using augmented reality in the teaching process and the third part of the questionnaire with 6 statements, refers to the possible threats of using augmented reality in higher education. Students opinions are expressed by demonstrating their acceptance or denial of the statements with gradation of opinions (1-highly agreed till 5-highly disagree with the statement). The questionnaire for university teachers is consisted out of three parts also. The first and the second part are consisted of 7 statements and are referring to found out the strengths and the weaknesses of using augmented reality as a teaching tool, and the third part, consisted of 6 statements is referred to the possible threats of using augmented reality.

In the **sample of the research** participated 321 students and 12 university teachers from the following technical faculties of the “University Ss. Cyril and Methodius” in Skopje: Faculty of mechanical engineering, Faculty of civil engineering, Faculty of Electrical engineering and information technologies, Faculty of architecture, Faculty of technology and metallurgy, and Faculty of design and technologies of furniture and interior. Distribution of the sample is listed below:

- A sample of students from the Faculty of mechanical engineering – Skopje (N=96) and a sample of university teachers from the same faculty (N=2).
- A sample of students from the Faculty of civil engineering – Skopje (N=68) and a sample of university teachers from the same faculty (N=2).
- A sample of students from the Faculty of Electrical engineering and information

technologies – Skopje (N=62) and a sample of university teachers from the same faculty (N=2).

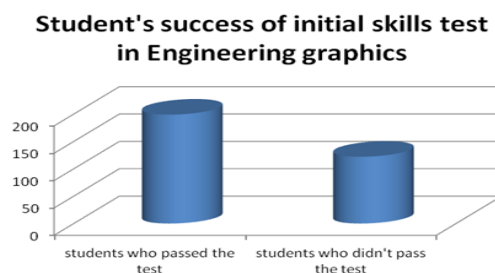
- A sample of students from the Faculty of architecture – Skopje (N=43) and a sample of university teachers from the same faculty (N=2).
- A sample of students from the Faculty of technology and metallurgy – Skopje (N=29) and a sample of university teachers from the same faculty (N=2).
- A sample of students from the Faculty of design and technologies of furniture and interior – Skopje (N=23) and a sample of university teachers from the same faculty (N=2).

## 4. RESULTS AND DISCUSSIONS

The methodology of the research implies taking several action research steps in order to obtain the final results and conclusions. *Statistical procedures* which were undertaken for processing the results included: numerical and percentage distribution of results, finding the mode (the most frequent opinion) and chi square to found out about the differences in opinions among students and university teachers from different faculties.

Results obtained from the *skills test* from the course Engineering graphics which intension was to measure the initial state of the students success in passing the test, before implementation of augmented reality, shows partial understanding of the learning material.

Namely, 62% of the students successfully pass the test. 28% from them pass the test with high grade, 19% with average grade and 15% with below average grade.



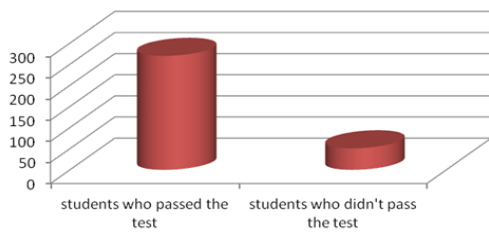
**Graph 1.** Students' frequency presentation about success of initial skills test in Engineering graphic

It is interesting to notice that to the questions related to the skills for projection of bodies in space, more than half of the students show below average results. That is pointing out towards the problems they have for understanding and interiorizing this complex problematic. All of the stated is an additional

proof for the need of change in the didactic realization of the learning material, especially in the practical exercises of the course.

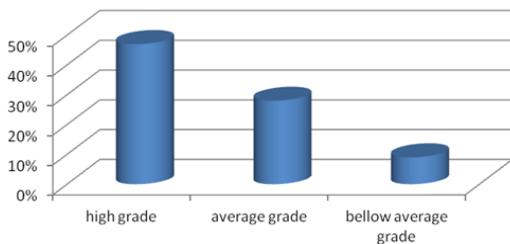
The results from the final knowledge and skills test, conducted after implementation of augmented reality as a teaching tool, show a positive trend in student's accomplishments. More than two thirds of the students (84%) pass the test: 47% of them with high grade, 28% with average grade and only 9% with bellow average grade.

**Student's success of final skills test in Engineering graphics**



**Graph 2.** Students' frequency presentation about success of final skills test in Engineering graphic

**Student's success of final skills test in Engineering graphics by grades**



**Graph 3.** Students' percentage presentation about success of final skills test in Engineering graphic by grades

These results are showing that significant growth of student's accomplishments, especially that almost half of them show high results as a consequence from implementing augmented reality as a teaching tool in the course.

Results from the *questionnaire intended to find out student's opinions of augmented reality's strengths, weaknesses and threats* show that students are thrilled working with this technology in the course. Almost every one (96%) of the interviewed students stated that this kind of lectures are more interesting for them, they are contributing towards better understanding of the material (100%) and can eventually lead to passing the course (68%).

**Table 1.** Results of the student's opinions from the statement: Lectures using augmented reality are very interesting for me

Statement: Lectures using augmented reality are very interesting for me	f	%
Highly agree	280	87,23
Partially agree	29	9,03
Neutral	0	0
Partially disagree	0	0
Highly disagree	0	0
TOTAL	321	96,26

**Table 2.** Results of the student's opinions from the statement: Augmented reality is contributing towards better understanding of the learning material

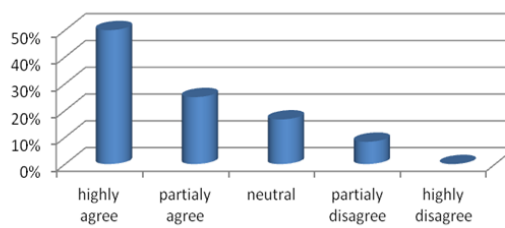
Statement: Augmented reality is contributing towards better understanding of the learning material	f	%
Highly agree	296	92,21
Partially agree	25	7,79
Neutral	0	0
Partially disagree	0	0
Highly disagree	0	0
TOTAL	321	100

**Table 3.** Results of the student's opinions from the statement: Using augmented reality as a teaching tool is eventually leading towards passing the course

Statement: Using augmented reality as a teaching tool is eventually leading towards passing the course	f	%
Highly agree	142	44,24
Partially agree	76	23,68
Neutral	52	16,20
Partially disagree	36	11,21
Highly disagree	15	4,67
TOTAL	321	100

While the benefits for the teachers from implementation of augmented reality as a teaching tool are summarized through their statements opinions that: Implementation of augmented reality is contributing towards saving time in lecturing (76%); It is a pleasure implementing sophisticated teaching methods (65%) and that Student's show increased interest for the learning material (87%). Students and university teachers both agreed that it is most likely that augmented reality can be interdisciplinary implemented, and see its implementation in different areas like: medicine, education, design, architecture, etc.

**Implementation of augmented reality  
 is contributing towards saving time in  
 lecturing**



**Graph 4.** University teachers’ opinions about the statement: Implementation of augmented reality is contributing towards saving time in lecturing

**Table 4.** Chi-square calculation of the statement: Augmented reality is applicable on other areas of study

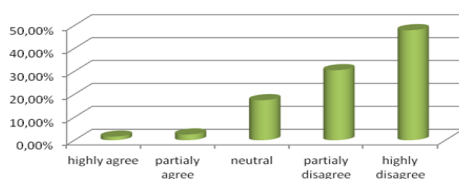
Faculty	Opinion					Total (f)
	Totally agree (f)	Partially agree (f)	Neutral	Partially disagree (f)	Totally disagree (f)	
Faculty of mechanical engineering	61	17	13	4	1	96
Faculty of civil engineering	48	9	7	2	2	68
Faculty of electrical engineering	37	16	5	2	2	62
Faculty of architecture	33	7	2	1	0	43
Faculty of technology and metallurgy	22	5	1	1	0	29
Faculty of design and technologies of furniture and interior	22	1	0	0	0	23
<b>Total (f)</b>	<b>223</b>	<b>55</b>	<b>28</b>	<b>10</b>	<b>5</b>	<b>321</b>

$\chi^2 = 22,68$      $df = 20$      $p > 0.05 = 31,410$      $p > 0.01 = 37,566$      $p > 0.05$

From the results projected in Table 4, we can conclude that there is no meaningful statistical difference between students’ from different faculties’ opinions. That is leading us to conclusion that more than two thirds of the students agree that augmented reality is applicable on other areas of study.

The weaknesses, or possible threats that teachers stated regarding implementation and realization of the course *Engineering graphics* are referring to the deficiency of licensed software for augmented reality at the university level, and not enough equipment of the university classrooms with personal computers with cameras which will slow down the process of learning.

**We have available licenced software  
 for augmented reality at my faculty**



**Graph 5.** Students’ opinions about the statement: We have available licenced software for augmented reality at my faculty

**5. CONCLUSION**

This paper presents how augmented reality can be applied in the education process as a didactic tool in executing classes in higher education. With its use the teachers and the educational institutions can sustain the students’ attention and interest to the course while in the same time facilitates the learning process. The achieved results in the pilot use of the application as a teaching tool at the technical faculties showed remarkable results. The application helps the teacher to present the objects in space with adequate visualization. On the other hand, the idea of using new technologies which represent the everyday life of this generation aids in keeping the students’ interest. The ability for physical interaction with the application is providing them additional assistance in exploring the geometry of shapes in space. This application is only a showcase presenting a mode of use in technical education, but its customization to other educational areas is very easy, like its use in medicine or design is also very attractive.

The application achieved results in shortening

the needed time of the student to understand and interiorize the learning material, which in the end results with successful passing the courses. At the same time, this application is assisting the teachers in easier transfer of knowledge for the given course.

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### Conflict of interests

Authors declare no conflict of interest.

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# PSYCHOLOGICAL FEATURES OF REPRESENTATIVES OF THE CHECHEN YOUTH PROFESSING ISLAM AND EXPERIENCING MYTHOLOGICAL FEARS

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Received: March, 30.2015.

Accepted: May, 05.2015.

Original Article

UDK 159.942.5.072-053.6(470.66)

**Abstract.** The article described the study of the relevance of the role and place of religious contents among young people in the postconflict areas of the South of Russia, the rate of experiences of mythological fear had been explored with the help of the survey, as well as individual psychological characteristics of subjects had been studied by methods of Eysenck, Schmieschek, J. Rotter and Taylor. Those representatives of the surveyed youth sample experiencing a high level of mythological fear could fall into the danger zone of initiation in the group of non-traditional religious sects, as well as come under extremists' influence, since manipulation of consciousness and human behavior, depending on individual psychological characteristics and by using of mythological content, such as fear of possession by jinni, is most effective. The study was attended by representatives of Islam at the age of 19-21, divided by gender: 100 young men and 100 girls. The study was aimed at identifying individual personality characteristics of temperament, character accentuations, locus of control, the level of personal anxiety and the results of a content analysis of the survey done by the author of the article were identified in accordance with five scales. Results of the study revealed that about 80% of subjects experiencing a high level of mythological fears had the same peculiar correlation indices. In connection with the results of research, we had worked out and suggested a complex of psycho-pedagogical support consisting of four modules for the purpose of education, preventive and corrective activities with young people

experiencing a high level of mythological fear (fear of possession by jinni).

**Keywords:** *Religion, Mythological fear, Possession by jinni, Adolescence, Psychological characteristics, Post-conflict region.*

## 1. INTRODUCTION

Speaking of myth as a phenomenon almost inextricably linked with religion, it should be noted that despite being similar in a deeply personal sphere, religion and myth still have a difference. In religion, people are looking for faith, salvation, justification, consolation, as it expresses the inner, spiritual side. In the myth, the man also has the possibility to express himself, to speak, to have his own history. Myth suggests a person an opportunity to express his personality.

The world of myth has harmony, strict order and is not subject to the logic of practical experience. Myth exists as a kind of hypothesis, impromptu judgment of reality. And, most importantly, creating such a reality man takes it as the only reliable. However, it's necessary to remember that excessive mythologizing of a person can actualize existential fears related to certain religious threats. Thus, excessive anxiety over certain mythological settings related to, for example, superstition, signs, witchcraft, belief in spirits negative impact, can function as a destructive transformation and deformation of the person, as on the stage of excessive mythologizing, religiousness is beginning to be excessive. For the present

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study, of particular interest is the influence of religion and anxiety over mythological fears on individual psychological characteristics of modern representative of Islam in the period of youth, especially in post-conflict areas, where the problems of religious belief and religious myths, can be transformed by the fact that society has survived a collective stress or moment in its development. Currently, psychology virtually has no research on identifying mythological fears (particularly the phenomenon of possession by jinni) among youth and who is most vulnerable to excess anxiety over mythological content. Evidence that a sufficiently large number of Chechen youth is at high level of experiencing mythological fears has become the impetus for this study.

## 2. MATERIALS AND METHODS

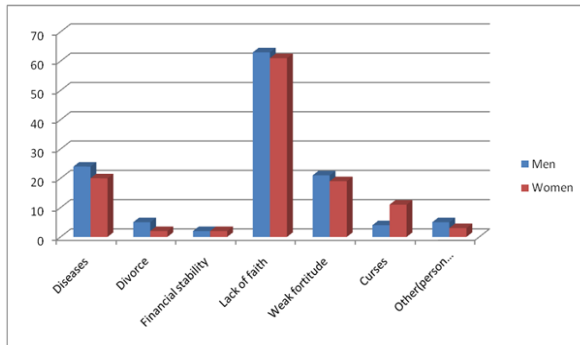
The study involved subjects in the amount of 200 people: 100 young men and 100 girls of the same age category. For quantitative and qualitative research results, we have developed a diagnostic system including the questionnaire we have worked out and dedicated to the study of the sphere of experiencing mythological fears among representatives of Islam in adolescence consisting of five scales (Grimoltanova R. E, 2014a) and 4 methods: Eysenck Personality Inventory, J. Rotter's test on the locus of control, Schmieschek character accentuations questionnaire, analysis of the anxiety level according to Taylor (Grimoltanova R. E, 2014b). To obtain the percentage data comparing the gender groups and subgroups divided into those who are experiencing high and medium level of anxiety over mythological fears, we used standard programs STATISTIKA 6.0, MATHLAB 7.0. For correlation study, we used Spearman rank correlation method, adjusted for the same ranks.

## 3. RESULTS

The pilot study revealed the following results: In the course of the survey we obtained data on 5 scales of the questionnaire. Results of the study on the first scale revealed the average age of the subjects equal to 20-years, and indicated that 100% of participants identify themselves as members of a religious group, professing the religion of Islam, also 100% of the subjects believe their family to be religious. The obtained data are the result of study of the survey samples of both gender groups. The

second scale study aimed at identifying the level of awareness of man about interpretation of certain religious concepts associated with the manifestation of good and evil, revealed results with no significant difference between gender groups. In both groups, on this scale, the results obtained were from 60% to 98% with a positive answer to the question about belief in evil spirits, devils, angels and jinni. In the existence of evil spirits from a religious point of view, believe 82% of the subjects of young men and 87% of the subjects of girls. Belief in the existence of the devil among the subjects of both groups is almost equal - about 80%. Regarding beliefs in existence of angels, the subjects give 98% of affirmative answers in both groups. Also, subjects in both groups almost equally, from 96% to 98%, believe in the existence of the jinni. The third scale survey questions are related to identification of the level of semantic units associated with fatality and catastrophization in understanding the impact of religion on the control of the human psyche. The question related to the real ability of each person to move into the body of the jinni the subjects of both groups gave positive answers amounting 82% to 87%. To a similar question but related directly to their personalities, subjects gave far less positive answers, 51% - in the men's group, 42% - in the women's. However, when asked the same question but with more precise religious aspect: "Do you admit the possibility of your exposure to, and the influence of supernatural forces on you from the religious point of view?", we received a higher percentage of positive answers, equal to 58%, in the women's group, The question related to the statement of experiencing individually symptoms of possession by other-worldly forces, even smaller percentage of positive answers from 19% to 21% were received from the subjects in both groups. The final question of the scale, is a question related to the possibility for a believer to be possessed by jinni, to which subjects responded positively 66% in the men's group, 72% in the women's group. The fourth scale of the questionnaire designed to identify to what extent people are really faced with problems of psychological threats from religious phenomena and to what extent these problems affect their real life world, showed the following results presented in Figure 1.

**Figure 1.** Results of responses to the questionnaire on the fourth scale



In the matter of who is at fault in the cause of human possession by jinni, of the options of answers presented, only 10% of the subjects of women’s groups believe the reason of possession is the curse; 20% of men and 18% of women believe that it is the weakness of fortitude; 21% of men and 19% of women believe that the reason is in diseases, and the highest rate of 64% among men and 62% among women believe that the main reason for a man’s possession by jinni is the lack of faith.

Finally, the fifth and the last scale of the questionnaire presents the question of the extent to which a person is aware of the fact that the society offers specific psychological mechanisms to protect themselves from psychological threats from demonic influence through religion.

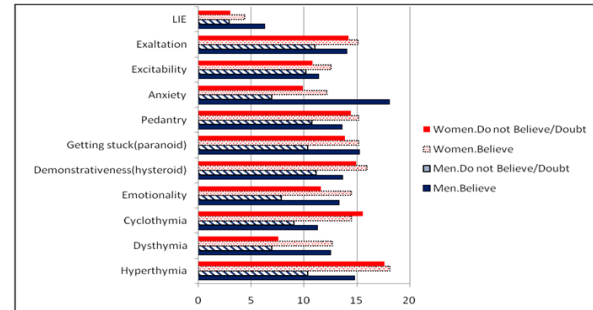
To the question “Should we be afraid of the jinni” the subjects gave affirmative answers - 24% in the group of men, 45% in the group of women.

To the question: “Who can liberate man from the devil’s (jinni) possession” out of the 5 proposed options of answers, 56% male and 54% of the women’s sample chose “religious representative.”

As a result of the survey to identify the presence and degree of mythological fears among representatives of Islam in adolescence in the postconflict territory of Southern Russia, and analysis of the data obtained we had received the results corresponding to the following parameters: 81% out of 99%, of young men experience a high level of mythological fears; 18% of young men experience average mythological fears; 79% of girls out of 100, experience a high level of mythological fears; 21% of girls experience average mythological fears. In processing the results of Schmiechek Personality Inventory respondents with different levels of mythological fears experience showed accentuation differences in subgroups divided into those experiencing

high and medium level of mythological fears, symbolically divided into groups M1, M2, G1, G2 (Figure 2).

**Figure 2.** High level of mythological fears experience - “Believe.” The average level of mythological fears experience - “Do not believe / Doubt.”



The diagram showed that the survey sample in the men’s group showed accentuated degree among young men in groups M1 and M2, on the following parameters: hyperthymia in group M1 was more expressed than in the group M2; emotionality, demonstrativeness (hysteroid), getting stuck (paranoid), pedantry and anxiety were also prevalent in the group with high-level index of mythological fears experience.

In the women’s survey sample, the severity of accentuation in groups R1 and R2, except for the accentuation of exaltation, was distributed with the same prevalence as in the men’s group of hyperthymia; emotionality; demonstrativeness (hysteroid), getting stuck (paranoid) and pedantry in the group G1.

The test data processed according to Taylor to identify the level of personal anxiety of respondents with different levels of mythological fears experience, showed that in the men’s sample group anxiety among young men experiencing a high level of mythological fears was 2% higher than in the second group. Also in the women’s sample group indicator of the level of anxiety among girls experiencing a high degree of mythological fears was higher (with a difference of 2%) than in the second group of girls.

Data obtained from the analysis of the test questionnaire to identify the locus of control had revealed results that showed that in the sample group of young men experiencing a high level of mythological fears internality index was lower than that of young men of the second group (M2). In the sample group G1, among women experiencing a high level of mythological fears internality index was also lower than in girls of group G2.

## 4. DISCUSSIONS

Initially, we planned to divide the entire survey sample into three groups of those who believe, doubt and do not believe in the phenomenon of human possession by jinni.

However, the data obtained by the content analysis of the survey allowed us to identify out of two gender groups, only the subgroup of respondents who experience high and average degree of mythological fears, in this case, possession by jinni.

Together with the survey, we conducted a psychological diagnosis of the entire survey sample to identify their individual psychological characteristics. Consequently, we got the expected results we have described in the previous section of this article.

To identify risks of negative religious influence, we carried out the comparative analysis of personal characteristics, which showed that, regardless of gender, logical correlation differences are found between subgroups experiencing high or medium level of mythological fears.

## 5. CONCLUSIONS

By analyzing the significant correlations in subgroups of young men and women a direct relationship is found between levels of degree of experiencing mythological fears and the availability of individual psychological dependency: cyclothymia and anxiety, emotionality and anxiety; demonstrativeness and anxiety, externality and hyperthymia.

The diagnostic data obtained allowed us to develop a program of psychological and pedagogical support for students of educational institutions, based on improving critical thinking and overcoming stereotypes of perception of reality, enhancing self-confidence by forming adequate self-esteem, which includes 4 main modules: diagnostics; individual psychological counseling; training work; educational activities.

As well one of the necessary methods to prevent and control destructive transformations among the public in post-conflict areas, is the introduction into the curriculum of higher educational establishments in the Chechen Republic of discipline "Psychology of Religion."

## ACKNOWLEDGEMENTS

The author would like to thank Professor I. V. Abakumova, Doctor of Psychology, under whose invaluable guidance this paper was written. She would also like to thank PhD. in Psychology AV. Miroshnichenko for his comments which led to substantial improvements in the paper.

### Conflict of interests

Authors declare no conflict of interest.

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# AWARENESS ABOUT MEDIATION AS AN ALTERNATIVE FORM OF DISPUTE RESOLUTION: PRACTICES IN THE REPUBLIC OF MACEDONIA

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Received: March, 23.2015.

Accepted: May, 05.2015.

Original Article

UDK 347.965.42(497.7)

**Abstract.** Disputes resolved with the use of mediation as a form of dispute resolution are rare (or at striking level) in the practice in our country. In order to increase the number of disputes that were successfully completed based on mediation, it is necessary for the people to know about the alternative forms of resolving litigation. The lack of information contributes to the lack of trust in any resolution of the dispute except in the court. There is also the positive practice of resolving disputes through mediation macular placed in public. This Paper treats the action research which aims to connect the people awareness of mediation as a form of negotiation through which can quickly and easily, without major financial implications, to resolve any dispute. This paper is based on a survey with the members of Chamber of Mediators of the Republic of Macedonia. These results clearly confirm the lack of information among the local population about the forms of dispute resolution that are available and the benefits they offer.

**Keywords:** *Negotiation, Mediation, Information, Litigation, Public.*

## 1. INTRODUCTION

Global Information Society affirms the need to constantly monitor the latest innovative trends in all areas, especially in those who are important to promote and facilitate the business and administrative processes. Following the latest methods of dispute resolution available to modern society, in the Republic of

Macedonia the mediation is promoted as an alternative tool for solving problems and disputes, without major financial implications. The first Law on Mediation in the Republic of Macedonia, ([Official Gazette of the Republic of Macedonia No. 60/2006](#)) that was adopted in 2006 has been prepared in accordance with the strategy and the commitment of the Republic of Macedonia to be integrated into the European mainstream, taking into account the numerous recommendations of the Council of Europe, the area of the mediation, addressed to the Member States to improve the efficiency of the judicial system and trial within a reasonable time, which provides a more cost effective, faster and more effective, to which the parties have easy access, and thereby ensure confidentiality, neutrality and impartiality.

However, this law, like all his further changes that resulted in the adoption of the new Law on Mediation ([Official Gazette of the Republic of Macedonia No. 188/2013](#)), did not achieve the expected effects, such as: fast and economical resolution of disputes in order to realize the common interests of the parties. Hence, the relevance of the phenomenon that is being investigated is related to inefficiency in resolving litigation in the Republic of Macedonia and low quality of adopted judicial decisions. The problem occurs in the segment of the lack of public awareness about the possibility of resolving disputes using mediation which eliminates initiation of the trial. That means you need to create mechanisms in which jurisprudence opposing sides will initially be directed to resolve the dispute using

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mediation. If mediation fails then the resolution of the dispute will be decided in the court. The lack of information is not only a problem for the countries included in the negotiation process but also for the court administration. The basic strategy in mediation is the negotiation between two opposing sides through a neutral observer/ mediator who has facilitation, encouraging and creating win-win outcome role in the process.

In this context, the article will focus on the need for promotion of mediation as a new paradigm in the cognitive process of resolving problems and conflicts. There entails a necessity of creation and promotion of new mental code to the public, which will encourage stakeholders to use this effective mechanism. Therein, of particular importance is the proactive role of the Chamber of Mediators as a leader in these processes, and, at the same time, the anticipation of its principles of responsibility. Finally, the mediator, as a central figure in the process, with his credibility and expertise shall become a synonym for recognizing mediation as an efficient, effective and operative remedy, and thus give more visibility to the mediation.

## 2. MEDIATION

Mediation is a voluntary, informal and flexible process of dispute resolution. It is a form of dispute resolution, found outside the adjudicative space of the courtroom or tribunal, where parties in dispute or conflict utilize the assistance of a third-party neutral to attempt to resolve their dispute (Spencer, Brogan and Brogan, 2006). The role of the mediator is to guide the conflicting parties to find a solution partnership through focus meetings that clearly define the problem and issues of stakeholders, establishing effective communication, creating an atmosphere of understanding and acceptance of the other position and generating innovative solutions by defining the alternatives for a solution acceptable to both sides. Using both, knowledge and resources, the mediator proposes solutions that become the subject of further negotiation when the agents in conflict cannot solve the dispute by themselves, (Trescak, Sierra and Simoff, 2014).

The mediator encourages parties to communicate, to be collaborative while trying to resolve the problem. They don't make decisions for the parties, (Crawley and Graham, 2002). Some sources point to the need of

neutrality of the mediator and decision-making only on the basis of objective truth, (Rothman, 2014). In order for the stakeholders to feel safe in the process of negotiation, the mediator should establish mutually agreed rules i.e. a protocol. There are different approaches to what are the common stages of the process of mediation. Among the most acceptable and universal determination is the Marian Roberts five-stage process (Roberts, 2008):

Stage I: Establish the arena – The first joint session

Stage II: Define and clarify the issues – The separate interviews

Stage III: Explore the issues – Return to the joint meeting

Stage IV: Development of options

Stage V: Securing agreement

The mediator is a person who performs the procedure for mediation, according to the principles of mediation. The mediation procedure is a specific type of procedure which by its nature is a voluntary, efficient, effective and financially affordable, (Riskin, 1994). Mediation is private, confidential and informal. The process of mediation is less adversarial than litigation or arbitration.

## 3. PROMOTING MEDIATION

Mediation includes different approaches to conflict resolution. Most efficient approaches are negotiation and facilitation. The promotion of mediation in public includes the application of powerful promotional strategies and tactics that allow placement of information to the public through the media, events, and discussion groups. Strategic promoting mediation informs the public with a set of tools for proactively management of the problems, conflicts, and disputes in the business community and public administration. The purpose of the promotional activities is to sensitize the community about the need for a change in the mental code by creating new social, societal and business competencies based on an effective communication, partnership, respect for diversity and creative dispute resolution.

In the dispute resolution, negative emotions such as anger, enthusiasm, excitement, guilt and remorse represent important obstacles that can be connected and mixed, (Posthuma, 2012). The mediator must know how to manage the emotions of the both sides in order to finish the dispute with satisfaction among the involved parties. Also, the

mediator must know how to bridge the past that creates problems by mediating in future tense, (Haynes, Gretchen Fong, Haynes and Fong, 2012).

The Past and Future in Mediation (same, 7)

Past	Future
Problem	Solution
Complaints	Goals
Sameness	Difference
Unchangeable	Change
Hopeless	Hopeful
Do Not Want	Do Want
Cannot Work	Can Work
Stuck	Fluid
Resistance	Openness

Effective mediation produces two new paradigms: acceptance of the situation of the opposing party and individual change in dealing with the problems. Mediation can transform conflicts' and disputes' destructive force in a positive and constructive interaction, which can reflect the entire business community.

#### 4. CURRENT SITUATION IN THE REPUBLIC OF MACEDONIA

The currency of mediation as an alternative dispute resolution is related to the use of an integrated approach to effective conflict resolution. From a legal perspective, the efficiency in resolving disputes requires a relevant procedure. As a result of the ongoing need for mediators, the Ministry of Justice created the Macedonian Chamber of Mediators, going through the process of training, and then taking the exam to get a license for a mediator. The public in our country is not sufficiently informed about the benefits of public mediation, which means that there is no communication strategy of the Chamber of Mediators and other relevant institutions to promote mediation. In certain business areas and categories, there is resistance to mediation as a result of insufficient information. The transparency of the activities of all parties involved and responsible for the development of mediation is low.

There is no website for mediation, with the exception of the main legal acts which are published on the website of the Ministry of Justice. In this context, taking into account

the legislative practices of developed economies in the world, the Republic of Macedonia acceded to certain activities that are still at the initial exercise. The efforts of the Republic of Macedonia are getting closer to current European legislation which initiated the processes and activities for the implementation and institutionalization of mediation. Relevance to the emergence of the study identifies the problem of research that affirms the need of constant promotion, implementation and institutionalization of the mediation as a modern alternative tool for dispute resolution.

### 5. RESEARCH

After determining the problem and the purpose of the survey, a general hypothesis is created. It reads: awareness about mediation as an alternative tool contributes to the efficient resolution of disputes. The survey was conducted by questionnaire to obtain all relevant information about the level of awareness of the entities that are directly or indirectly involved in mediation to determine the views and opinions of the mediators of the Directory of Mediators of the Ministry of Justice to analyze the elements and characteristics of mediation and dispute resolution and mediation to determine which activities should be initiated to encourage the use of mediation in resolving disputes. The research was conducted with an online survey on a representative sample, of 82 licensed members of the Chamber of Mediators of the Republic of Macedonia. The purpose of this survey is to evaluate the impact of the information awareness of the parties in the dispute over the success of mediation. The research was conducted in July 2014. The questionnaire was sent by e-mail to the licensed mediators and it was composed of 22 questions.

#### 5.1. Results of the survey

The analysis of the survey gave results in addition to proving of the set hypotheses. Issues (standings) are related exclusively to the situation in the Republic of Macedonia. Below are presented some of the issues that have key importance for obtaining of conclusions of the survey. The clause "The mediation is maintained method in dispute resolution in the Republic of Macedonia", which was referred to as the first question in the questionnaire, most of the respondents, 47

respondents (55%) have responded: I do not agree that mediation in solving issues is sufficiently maintained. In that direction 13 respondents answered: I do not agree at all (15%) versus 0 answers (0%): I completely agree and 10 responses (12%): I agree. Fairly agree 12 respondents or 15% of them. These results speak for the low representation of mediation in resolving disputes in the Republic of Macedonia. Given the fact that the participants were people who are actively involved in the use of mediation in the settlement of disputes, it is clear that the relevance of the data is high. These results are in favor of the assumption that mediation is a very little bluntly form of dispute resolution.

**Table 1.** Table of obtained answers to question number 1

Answer	Respondents	Percentage
I completely agree	0	0
I agree	10	12%
I fairly agree	12	15%
I do not agree	47	57%
I do not agree at all	13	16%
Total	82	100%

Table number 1 presents the results of question number 1.

The third question “There is a need for media campaign which will aim to convey the message of the benefits offered by the mediation” most respondents, 35 or 43% agree that a media campaign is required that will aim to convey the message of the benefits offered by the mediation. In addition to that answer, 27 respondents or 33% completely agree. 21% or 17 respondents fairly agree, and only three or 3% do not agree with that. The total percentage of agreement with this statement is even 74%. It is a high score indicator which indicates the need for a media campaign that will allow the public to be informed of the advantages offered by mediation.

**Table 2.** Table of obtained answer to question number 3

Answer	Respondents	Percentage
I completely agree	27	33%
I agree	35	43%
I fairly agree	17	21%
I do not agree	3	3%
I do not agree at all	0	0%
Total	82	100%

Table number 2 presents the results of question number 3.

The fourth question resulted from the assumption of a small commitment of the Chamber of mediators in the process of

informing the public or the individuals which are their potential clients. It reads: “Informing citizens about mediation will increase if the engagement of the Chamber of Mediators increases.” In addition the following results were obtained: huge 43% or 35 respondents fairly agree with the conclusion, 38% or 31 respondents agreed, 9% of respondents completely agree, while only 1% or 1 respondent did not agree that the awareness of citizens for the mediation will increase if the engagement of the Chamber of Mediators increases. In this statement the neutral position and the percentages of disagreement indicates that the Chamber of mediators should and must have its proper role in increasing the awareness of citizens for mediation. This fact suggests that the Chamber of Mediators has a passive role in increasing the awareness of citizens.

**Table 3.** Table of received answers to question number 4

Answer	Respondents	Percentage
I completely agree	9	11%
I agree	31	38%
I fairly agree	35	43%
I do not agree	6	7%
I do not agree at all	1	1%
Total	82	100%

Table number 3 presents the results of question number 4.

After the confirmation of the low application of mediation in the state, there is a need for assessment by the mediators of the level of public awareness about mediation. Therefore, the sixth question is: “How do you grade the level of awareness for mediation in the Republic of Macedonia?”. The largest number of respondents mediators, 66 or 80%, rated the level of awareness for mediation in the country as low, 9 of them or 11% rated it as medium, and 7 or 9% rated it as high. This ranking of information by respondents with high 80% that responded “low” indicates that it is a great lack of information to the public. It points to the need to use a variety of instruments that will increase the awareness of the citizens for mediation, in general, its advantages and benefits.

**Table 4.** Table of received answers to question number 6

Answer	Respondents	Percentage
High	7	9%
Medium	9	11%
Low	66	80%
Total	82	100%

Table number 4 presents the results about the level of awareness of mediation of citizens.

The fifteenth question aims to measure the impact of awareness of customer competence of the mediator for the successful resolution of negotiations. It reads: “The information about the neutrality of the mediator positively affects the decision about the acceptance of mediation”. 44% or 36 of respondents agree that the decision to initiate mediation affects the awareness of client competencies. The mediator must have highly developed negotiation skills to be able to properly direct the discussion towards the solution of the dispute, 32% or 26 respondents completely agree, 13% or 11 respondents fairly agree, and 11% or 9 respondents disagree with the statement. The results confirm the thesis that if the involved parties are informed about the place and the role of the mediator in the process of dispute resolution, i.e. they are informed about the neutrality of the mediator in the whole process of mediation, then the clients will easily make the choice on mediation as an alternative form of dispute resolution.

**Table 5.** Table of received answers to question number 15

Answer	Respondents	Percentage
I completely agree	26	32%
I agree	36	44%
I fairly agree	11	13%
I do not agree	9	11%
I do not agree at all	0	0%
Total	82	100%

Table number 5 presents the results of question number 15.

The informed clients about the neutrality and objectivity of the mediator can be a very strong factor for gaining the trust of the involved parties in the relevance of the mediation as a form of dispute resolution. Based on the negotiating skills, the mediator may acquire confidence among stakeholders in the relevance of mediation as a form of dispute resolution. The statement that “trust can help in resolving the dispute” is explored through the question: “If the information about the neutrality of the mediator positively influences the stakeholders to achieve a higher level of confidence among them, and will contribute to facilitating resolution of dispute.” The obtained results in large percentage confirm the connection of achieved confidence with the positive resolution of the dispute. Only 45 respondents or 55% of the mediators agree with it, 17 respondents or 21% of mediators

completely agree and 8 respondents or 10% fairly agree. In contrast, 12 respondents or 14% disagree, and 0% doesn’t agree with the statement that achieving trust among stakeholders can facilitate a solution of the dispute. Achieving a high level of confidence actually allows mediation to take place in a more relaxed atmosphere where easily achieved contract dispute is more likely to happen.

**Table 6.** Table of received answers to question number 16

Answer	Respondents	Percentage
I completely agree	17	21%
I agree	45	55%
I fairly agree	8	10%
I do not agree	12	14%
I do not agree at all	0	0%
Total	82	100%

The previous table number 6 shows the results gained from the respondents in the context of the relation of gained trust by the involved parties and the process of mediation toward successful dispute resolution.

The question “What activities do you think should be taken to raise awareness of citizens about mediation and their confidence in it” the largest number of respondents 52% felt they needed a media campaign, 20% needed institutional support for mediation, 16% required benefits from mediation in time and finances, and 12 % highlighted the positive examples solved by mediation solution. None of the respondents 0% agree that there is a need of mediation workshops as an activity that should be taken into account in order to raise the information of the citizens about mediation.

This question, as well as the third one, presented above, only confirm the need of media campaign. The respondents had the opportunity to choose between other activities in order to raise the information of the citizens about mediation. The answers to this question with the high percentage, show the need of positive examples of mediation in practice which confirmed that the stakeholders have financial benefits. Also, this institutional support of mediation is valued as important, and thus is a confirmation of the necessity of advanced involvement of the Chamber of mediators in the process of citizen information.

**Table 7.** Table of received answers to question

Answers	Respondents	Percentage
Media campaign	43	52%
Media workshop	0	0%
Highlighting positive examples	10	12%
Benefits of mediation in time and finances	13	16%
Institutional support	16	20%
Total	82	100%

Table number 7 shows the results of the respondents about the question in the context of the location of the necessity activities for increased process of citizen information about mediation.

The question number 20 “In your opinion, what is important for successful mediation”, for 39.02% of the mediators the most important thing are the skill of the mediator, for 24.39% the good negotiating is important to come to a solution to the dispute, for 13.41% it is the knowledge of citizens and financial costs, and only 9.76% think that the most important thing is the speed of finding a solution out of the court. This indicates that a successful mediation requires the mediator to have good negotiation skills and the ability for mediation to be successful. This only justifies the obligation to license the future mediators provided by the Law of Mediation.

**Table 8.** Table of received answers to question

Answer	Respondents	Percentage
Knowledge of citizens	11	14%
Mediator's skills	32	39%
Negotiation as a skill	20	24%
Seed of finding a solution out of court	8	10%
Financial costs	11	13%
Total	82	100%

Table number 8 shows the results obtained from the respondents on question number 20.

## 6. CONCLUSIONS

The current conditions of the implementations of mediation as an alternative form of dispute resolution show that in the Republic of Macedonia the mediation is used rarely. In the context of finding the causes of this situation, the impact of public awareness about the benefits of mediation has been explored. As participants in the survey were used members of the Chamber of Mediators. The findings resulting from the following:

- Informing the public about the benefits

that citizens have when they use mediation as an alternative form of dispute resolution has a great impact on the decision this way of resolving disputes to be applied.

- A media campaign is needed to inform citizens about mediation.

- Informing the stakeholders with neutrality and impartiality of the mediator in the mediation process allows increasing confidence of the individual to the mediator and glad acceptance of mediation as the useful process. Thus, stakeholders are likely to accept cooperation with the mediator which in turn facilitates the whole process easier and leads to resolution of the dispute.

- Through various forms, it is needed to inform the public about mediation, financial benefits and benefits in speed of dispute resolution.

- The increase in awareness is necessary to actively involve the Chamber of mediators of the Republic of Macedonia. The unresponsiveness which currently is present, that is inappropriate to the current needs of the country.

- The public should be informed about the competences of the mediators that must be on a very high level. Knowing the negotiating skills must be part of the remit of the mediator, and that (to) ensure that the license held by each of them.

The conducted research was conceptualized so that respondents gave guidelines for increasing mediation as an alternative to resolving disputes. That is how the recommendation for greater institutional coverage support mediation emerged.

### Conflict of interests

Authors declare no conflict of interest.

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## INTERPERSONAL RELATIONS IN THE EDUCATIONAL AND MANUFACTURING ORGANIZATIONS

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Received: May, 14.2015.  
Accepted: June, 01.2015.  
Original Article  
UDK 331.104.2

**Abstract.** Success and efficiency in the working organizations today are based upon good communication and social relations between their employees. The importance of these processes is visible in the use of modern techniques of communicating and the support of team building and team work in organizations. Communication and social climate is a topic that is contemporary and interesting to explore. Therefore, this research is focused on processes of communication and social interaction in the educational and manufacturing working environments. Research data were gathered with survey on a sample of 121 workers from two educational and two manufacturing working organizations. Two types of questionnaires were used: a questionnaire by Richard L. Daft (2001) on the communication issue and so-called WES Work Environment Scale concerning social interaction. Data were analysed with statistical procedures of descriptive statistics (frequencies, percentage, mean and standard deviation) and inferential statistics (t-test) for testing of hypotheses.

Based upon this analysis came the conclusion that there is a difference in the degree of development of these important personal skills. The results show that the workers in the educational working organizations have a greater ability to communicate and interact compared to those in the manufacturing organizations.

This research is meant to be a base for conclusions that came by information gathered in these two kinds of organizations so that the insight could lead further research in other types of organizations.

**Keyword:** *Social interaction, Communication, Working organisations.*

### 1. INTRODUCTION

Everyday's life is mainly associated with the needs that individuals fulfill within

different types of organizations. Beginning with the dependence from the family, further on with institutions like school, working organizations and different kinds of associations, the individual becomes a part of the wider society, gains its' part in it and fulfills its' own human needs.

Every human being is a social being, and during its' life is in interaction with the other social entities. Therefore it is necessary people to possess ability to maintain good relations with the others, that includes good social interaction and good communication.

From the aspect of modern living the ability for good social interaction and communication has the leading role. Another interesting fact is that today's way of organization work needs coordination of teams, that are consisted of collaborators with different professional profiles putting in first line high level of communication. Common goals and grow of organizations can be achieved with good communication and less misunderstanding. The good relations are especially important for coordination of the organization, as a whole and between different levels of the organizational hierarchy. They can be also a precondition for the solutions for potential conflicts, and especially for their prevention.

Communication is the most basic mean of social interaction and these skills are mostly necessary in the work of the teams. In order to achieve the right effect, it is important message to be well transmitted to the recipient. The correct comprehension of the message is the bases of the good organizational work. As long there is good communication in the organization and good social interaction, there is a strong possibility for strong organizational work.

The importance of the issue motivated us to explore this phenomenon and to verify some hypotheses related to social interaction

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and communication in the manufacturing and educational organizations. In broader context, research is associated with various aspects of the human resources management as well.

## 2. MATERIALS AND METHODS

The research aims to determine the difference between the assessment of the working environment and the personal view of the communication skills of the employees in manufacturing and educational working organizations. Empiric exploration of the differences can lead further to developing ways for their improvement.

*Research problem* was mainly focused on the social interaction and communication between the employees in the manufacturing and educational working organizations.

*Social interaction* is associated with the relations between different kind of social entities: people, little groups, organizations, different social institutions, large social groups, global social communities, and different kinds of associations of people.

*Communication* is the basic and most common shape of social interaction.

*The aim of the research* is to define how the employees assess their working environment and to determine whether there is a difference in the processes of social interaction and communication between the employees in the manufacturing and educational working environments.

According to the strategy that is used, the research can be defined as contemporary, comparative, inter-disciplinary, transversal, and quantitative.

Objectives of the research are the following:

1. Determination of the difference in the assessment of the working environment by the employees in the manufacturing and educational working organizations.
2. Determination of the difference in the assessment of the working environment by the employees in the manufacturing and educational working organizations having in consideration the gender.
3. Determination of the difference in the assessment of the working environment by the employees in the manufacturing and educational working organizations depending on their working experience.

4. Determination of the difference in the assessment of the working environment by the employees in the manufacturing and educational working organizations having in consideration the level of education.
5. Determination of the difference in the personal sense for communication by the employees in the manufacturing and educational working organizations.
6. Determination of the difference in the personal sense for communication by the employees in the manufacturing and educational working organizations having in consideration the gender.
7. Determination of the difference in the personal sense for communication by the employees in the manufacturing and educational working organizations having in consideration the working experience.
8. Determination of the difference in the personal sense for communication by the employees in the manufacturing and educational working organizations having in consideration the level of education.

General hypotheses:

1. There is a significant difference in the assessment of the working environment by the employees in the manufacturing and educational working organizations.
2. There is a significant difference in the personal sense for communication by the employees in the manufacturing and educational working organizations.

Sub hypotheses:

1. There is a significant difference in the assessment of the working environment by the employees in the manufacturing and educational working organizations having in consideration the gender.
2. There is a significant difference in the personal sense for communication by the employees in the manufacturing and educational working organizations having in consideration the gender.
3. There is a significant difference in the assessment of the working environment by the employees in the manufacturing and educational working organizations

having in consideration the working experience.

4. There is a significant difference in the personal sense for communication by the employees in the manufacturing and educational working organizations having in consideration the working experience.
5. There is a significant difference in the assessment of the working environment by the employees in the manufacturing and educational working organizations having in consideration the level of education.
6. There is a significant difference in the personal sense for communication by the employees in the manufacturing and educational working organizations having in consideration the level of education.

*Relevant variables* of the research are: the type of organizations, the gender, the working experience and the level of education.

*Dependent variables are:* social interaction and communication.

Regarding to the human resource management it is important to maintain high level of social interaction and communication, in order to develop good work atmosphere. It is very important to find more adequate ways to keep the level high. Therefore in this work the focus is on exploring this field using scientific methods. We used descriptive, comparative and correlative research methods. Data were collected with use of scales and questionnaires:

- For the assessment of the personal sense for communication we used five-level Likert scale by Richard L. Daft. The score range is from 24 to 120 with the average score of 72.
- For the assessment of the working environment we used WES scale of the working environment (Moos, 1994) with the subscale for IWR assessment (Index on Work Relations - IWR) that encompasses an involvement, peer cohesion and supervisor support. The range of the IWR score is from 1 to 27 with the average score of 14.

#### *Research sample*

Population of the research are the employees from manufacturing and educational organizations. The sample is consisted of 121 employees from two manufacturing and two educational working organizations from

Skopje, Republic of Macedonia (around 30 employees from each organization).

#### *Data analyses*

The statistical data that are analyzed in this study are attributive and numerical.

- Attributive: field of work, gender, level of education.
- Numerical: working experience.

The statistical values used in the evaluation are of the descriptive and inferential statistics, such as the distribution of frequencies, percentage, arithmetical mean, standard deviation, standard error of arithmetical mean and t- test for the testing of the hypotheses.

#### *Organisation and Procedure*

This research is quantitative and is completed in seven phases:

1. Identification, definition and specification of the problem.
2. Designing a research plan.
3. Implementation of techniques for data collection.
4. Testing the hypotheses.
5. Analyzing and interpreting the results and making conclusions.
6. Writing a report.
7. The new conclusions are a contribution for scientific growth.

### **3. RESULTS**

The research sample has the following characteristics:

- The number of male employees was larger in the manufacturing organizations compared to the female employees.
- The number of female employees in the educational organizations was larger compared to the male employees.
- The number of employees that have bigger working experience was larger in the manufacturing organizations compared to the educational organizations.
- The number of employees that had a higher level of education was larger in the educational organizations compared to the manufacturing ones.

As for the scores from the questionnaires, it was evident that:

- The assessment of the working environment was on a higher level among the employees in the educational working organizations compared to those in the manufacturing ones.
- The personal sense for communication was on a higher level among the employees in the educational working organizations compared to those in the manufacturing ones.
- The lowest score for the assessment of the working environment was with the employees in the manufacturing organizations.
- The lowest score for the personal sense for communication was with the employees in the educational organizations.

The results also show that:

- 52,3% of the employees in the manufacturing organizations have a score above the average concerning the assessment of the working environment.
- 64,3% of the employees in the educational organizations have a score above the average when the assessment of the working environment is concerned.
- 75,4% of the employees in the manufacturing organizations have a score higher than the average concerning the personal sense for communication.
- 87,5% of the employees in the educational organizations have a score higher than the average when the personal sense for communication is concerned.

As for the research hypotheses, the conclusion is that both of the main hypotheses can be approved and **there is a significant difference in the assessment of the working environment and the personal sense for communication between the employees in the manufacturing and educational working environments.**

This study also involved testing of the sub hypotheses, and statistical analyses results with following conclusions:

- There is not a significant difference in the assessment of the working environment by the employees in the manufacturing and educational working organizations.

**Table 1.** Significance of the difference in the assessment of the working environment by the employees in the manufacturing and educational working organizations

Type of organization	N	M	SD	t	p
Manufacturing	65	14,63	4,68	1,32	>0.01
Educational	56	15,87	5,62		

- There is a significant difference in the personal sense for communication between the employees in the manufacturing and educational working organizations.

**Table 2.** Significance of the difference in the personal sense for communication between the employees in the manufacturing and educational working organizations

Type of organization	N	M	SD	t	p
Manufacturing	65	80,58	13,72	3,35	<0.01
Educational	56	90,37	18,08		

- There is not a significant difference in the assessment of the working environment by the employees in the manufacturing and educational working organizations, depending on a gender.

**Table 3.** Significance of the difference in the assessment of the working environment by the employees in the manufacturing and educational working organizations, depending on the gender

Gender	N	M	SD	t	p
Women	52	14,86	4,94	-1,19	>0.01
Men	48	16,04	4,9		

- The analyses shows that there is not a significant difference in the personal sense for communication between the employees in the manufacturing and educational working organizations, depending on a gender.

**Table 4.** Significance of the difference in the personal sense for communication between the employees in the manufacturing and educational working organizations, depending on the gender

Gender	N	M	SD	t	p
Women	52	85,82	15,84	0,09	>0.01
Men	48	85,52	17,07		

- There is not a significant difference in the assessment of the working environment by the employees in the manufacturing and educational

working organizations, as far as the working experience is concerned.

**Table 5.** Significance of the difference in the assessment of the working environment by the employees in the manufacturing and educational working organizations, as far as the working experience is concerned

Working experience	N	M	SD	t	p
Less	62	15,47	4,89	0,42	>0.01
More	50	15,04	5,83		

- The analyses shows that there is not a significant difference in the personal sense for communication between the employees in the manufacturing and educational working organizations, as far as working experience is concerned.

**Table 6.** Significance of the difference in the personal sense for communication between the employees in the manufacturing and educational working organizations, as far as working experience is concerned

Working experience	N	M	SD	t	p
Less	62	88,14	15,33	1,84	>0.01
More	50	82,6	16,54		

- The analyses shows that there is not a significant difference in the assessment of the working environment by the employees in the manufacturing and educational working organizations depending on their level of education.

**Table 7.** Significance of the difference in the assessment of the working environment by the employees in the manufacturing and educational working organizations, depending on their level of education

Level of education	N	M	SD	t	p
Lower	67	14,62	4,86	-1,22	>0.01
Higher	47	15,83	5,63		

- The analyses shows that there is a significant difference in the personal sense for communication between the employees in the manufacturing and educational working organizations, as far as the level of education is concerned.

**Table 8.** Significance of the difference in the personal sense for communication between the employees in the manufacturing and educational working organizations, depending on their level of education

Level of education	N	M	SD	t	p
Lower	67	79,97	15,75	-4,27	<0.01
Higher	47	92,42	15,12		

## 4. DISCUSSION

In this research study we explored the differences between the assessment of the working environment and the personal sense for communication of the employees in the manufacturing and educational working organizations as a basis to find ways to develop more efficient ways and improvement of these processes in the organizations.

This empiric results point out that a large number of employees both in educational and manufacturing organizations have a high level of personal sense of communication.

Related to the assessment of the working environment, a large percentage of employees in the educational organizations are satisfied with it, compared to the smaller percentage in the manufacturing organizations.

These results point out to the correlation between the communication skills and social interaction. As much as the individual communicates better with the others, it is most likely that he/she is able to preserve good relations with them.

This research shows, further on, that processes of communication and social interaction are different between the employees in the manufacturing and educational organizations, that confirms the general hypotheses of research. These differences are based on the nature of the profession and specifics of work in these different kind of organizations, whether it has more to do with individual or team work. Comparing these results with other relevant research on global and local level shows that some conclusions correspond to other and some differ.

As far as this exploration being done in Macedonia, it shows that the conclusions differ from an organization to organization. In one case the individual work was more important because it involved putting pieces together. But in another organization, the team work between different types of professionals was more important.

The research in educational organizations show that the social climate and positive assessment of the working environment is present amongst all of them due to the autonomy orientation towards work and low work pressure. The results in different educational organizations are similar. The personal sense for communication is an individual characteristic that is in correlation with the social climate and in environments where the communication is on a higher level there is more productivity shown in the research of Mayo. Research in educational organizations in Macedonia also confirm that variations in social climate affect variations in work satisfaction. (Sardzoska , 1997).

The results of our study also point to the fact that the employees in the educational organizations possess good communication skills, but there is always need and room for their improvement. More frequent contacts in the sphere of informal interaction could contribute to socialization of employees outside of work. That way the group will be able to communicate better and to come to solutions that are common for the employees inside the organizations.

In the manufacturing organizations the personal sense for communication is on a high level but there is a lower satisfaction with the working environment. There is a more expressed informal communication that results with better social interaction.

It is important employees to be involved in the communication as much as possible. Meetings should be done daily, weekly or monthly, and face-in-face. In this way we reduce the possibilities for conflicts and misunderstandings. Implementing the new techniques for communicating, supporting team work and spirit are efficient tolls and show good results in overcoming of located problems in this field. Team work is the bases for the survival of the organizations today and it is a responsibility and challenge for the managers of human resources.

## 5. CONCLUSION

This research is focused on relations between employees in working and manufacturing organizations analyzed from different aspects. Until now, this topic has been explored by eminent researchers, beginning with the Hawthorne studies conducted by Elton Mayo (Roethlisberger F.J., Dickson, W.J , 2003), later on with Hertzberg research,

scientific work of the researchers in the Tavistock Institute of Human Relations in UK, as well as researchers in Macedonia. Results mainly confirm that good communication and social interaction are in favor of productivity.

Results of our study point out that there is a significant difference between the personal sense for communicating and assessment of the working environment of the employees in the manufacturing and educational organizations. Testing of the sub hypothesis confirmed that there is a significant difference in the personal sense for communication between the employees in the manufacturing and educational organizations, concerning the level of education. As shown in this work, the employees in the educational organization have better skills in communicating and interaction than those in manufacturing organizations, which is in correlation with the nature of their professional work.

The study gave possibility for the workers to express their attitudes but also for the employers to have an insight in their workers' opinions. Based on the results, managers can plan use of new techniques for improving the communication and social climate inside the organizations. Beside the syndicates, it is up to the HRs to manage the interest of the employees and the employers. That means that during the selection process the candidates must have strong abilities to communicate and interact. Communication and interaction are the main factors in the functioning of organizations and the future should be focused on their improvement and growth.

### Conflict of interests

Authors declare no conflict of interest.

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# EEG BASED COGNITIVE WORKLOAD CLASSIFICATION DURING NASA MATB-II MULTITASKING

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Received: January, 06.2015.

Accepted: February, 09.2015.

Original Article

UDK 004.032.26

**Abstract.** The objective of this experiment was to determine the best possible input EEG feature for classification of the workload while designing load balancing logic for an automated operator. The input features compared in this study consisted of spectral features of Electroencephalography, objective scoring and subjective scoring. Method utilizes to identify best EEG feature as an input in Neural Network Classifiers for workload classification, to identify channels which could provide classification with the highest accuracy and for identification of EEG feature which could give discrimination among workload level without adding any classifiers. The result had shown Engagement Index is the best feature for neural network classification.

**Keywords:** Cognitive Workload, Discrete wavelet transform, EEG spectral feature, Neural Network.

## 1. INTRODUCTION

Cognitive Workload is defined as the load generated due to processing of multiple activities (or sub activities of a task) by the human brain in the time domain. In our context, it depends on how efficiently there is an interaction between operator's resource capabilities and computer/machine on which the tasks have to be displayed. When the operator's workload is at the peak, then a properly

designed automation task can reduce workload or maintain its optimal level (Kramer, 1991). Workload assessment of operator during task can offload some of his tasks to the machine with the help of smart system design. For designing of such system, psychological and physiological aspects are carefully assessed for finding out suitable combination that can provide optimum utilization of human resource with the machine. In this research paper, we tried to identify EEG channels with the best feature that could give a maximum classification of workload. It also included feature identification without adding any classifiers. There are three methods to assess the cognitive workload, i.e. task score, subjective score and spectral features of the EEG (Wickens, 1988). Workload assessment through giving a questionnaire about a task makes subjective judgments about the task (Reid and Nygren, 1988). Multi Attribute Task Battery (MATB-II) was used for workload assessment in two modes, LWL and HWL. It was used for multitasking as well as for workload assessment (Singh, A. L., Tiwari, T., Singh, I. L., 2010; Singh, I. L., Sharma, H., Singh, A. L., 2005). Advantage of choosing MATB over others were its qualification for providing objective and subjective scoring along with different level of workload (Hart and Staveland, 1988).

Different Attentional demands like to divide attention which is generated by a task change pattern of subjective workload and its psychological impacts (Mazloumi, Kumashiro, Izumi, and Higuchi, 2010). There

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is a nonlinear relation between workload and performance (Gawron, 2000). Therefore, we didn't rely completely on subjective & objective scores; we included electrophysiological (EEG) factors also (Gevins and Smith, 2003). There are a lot of research articles that show significant relationships between EEG parameters like engagement indices and performance both in fields and off fields (Berka et al., 2007; Freeman, Mikulka, Scerbo and Scott, 2004; Mikulka, Scerbo and Freeman, 2002). EEG analysis is performed using classically defined frequency bands alpha (8-12 Hz), beta (13-22 Hz), delta (23-30 Hz), theta (5-7Hz) and gamma (30-70 Hz) (Dickson, 2005; Dorneich, Ververs, Mathan and Whitlow, 2005) or sometimes it can be analyzed using some ratio of frequency bands, Prinzel et al (2000) developed an EEG-engagement index based on beta power divided by alpha power plus theta power. A feed forward neural network based on back propagation algorithm was used to classify the workload into NWL, LWL and HWL among 14 channels in MATLAB 2012.

The objective was (i) Comparison among input features to determine their qualifications as a workload level discriminating factor. Here input features included objective scores, subjective scores and EEG features. (ii) To determine the most suitable input feature that can be used in designing human-machine load balancing logic for an automated operator. It was based on statistical parametric testing that gave output with significance.

## 2. MATERIALS AND METHODS

### A. Procedure

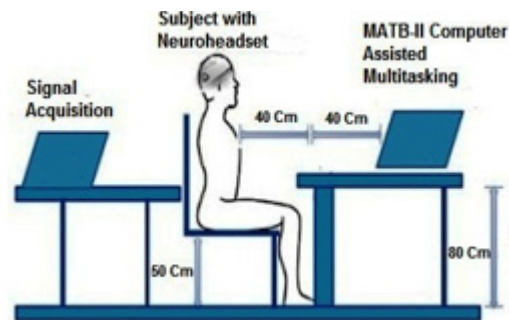
Subjects (n=10, age group 20-30 years, all male and right handed) from the Institute of Nuclear Medicine and Allied Science, New Delhi were invited to perform NASA's MATB-II pilots multitasking tasks, which had no prior experience of MATB like piloting tasks. Consent was taken from all subjects to participate in this project. They were required to fill a questionnaire to build their general profile. Each subject was well trained with the MATB-II software at the beginning of the testing as per given module of MATB-II software (Fairclough and Venables, 2010; Fairclough, Venables, and Tattersall, 2005). Lab ergonomics were followed by the ideal arrangement. The MATB-II task stimuli was presented on a computer screen (15 inches) with a dark

background and a viewing distance of 80cm. EEG from each subject was recorded with low-cost EEG device Emotiv EPOC (Knoll, Wang, Chen, and Xu, 2011) which was a 14-channel, 128 Hz neuro-signal acquisition and processing wireless neuro headset (Figure 1).

The following steps were performed by the subjects for workload assessment through the tasks assigned as per NASA's MATB-II, which was designed according to an eight minute event file.

1. During the experiment, three minute baselines were recorded with eyes open. In this situation, a laptop screen with no luminescence was kept in front of the subject's eyes.
2. 1 minute rest.
3. NASA MATB-II tasks at Low workload level were given to subjects.
4. 1 minute rest.
5. NASA MATB-II tasks at High workload level were given to subjects.

Figure 1. Lab Arrangement



### B. Technique

#### (i) Feature Extraction

Root mean square (RMS) value

The RMS value is mainly used for varying a quantity and useful statistical parameter to see the effect of workload on EEG signals (Basmajian and Luca, 1985). It is useful to measure power in amplitude of EEG signals from the cerebral cortex (Abdul-latif, Cosic, Kumar, Polus, and Da Costa, 2004).

The RMS for a collection of N values {x1, x2, ..., xN} is given by the equation

$$x_{rms} = \sqrt{\frac{1}{N} \sum_{i=1}^N x_i^2} = \sqrt{\frac{x_1^2 + x_2^2 + \dots + x_N^2}{N}}$$

### Sub band Energy

Wavelet packet node energy is more useful in representing a signal. Wavelet packet component energy  $E$  and total signal energy can be defined as

$$E_{tot} = E_f = \sum_{i=1}^{2^j} E_{f_i^j}$$

Multi-channel full-band EEG signals are decomposed into five well-known frequency sub-bands: delta, theta, alpha, beta, and gamma. Different energy bands like gamma, alpha, beta and theta have been calculated with MATLAB programming (Sun, 2008).

### Power Spectral Density (PSD)

The power spectral density is mostly directed at the continuous spectrum of the signal (Sun, Chang, and Tang, 2006). In contrast to the mean-squared spectrum, the peaks in this spectrum have no reflection of the power at a given particular frequency (Zarjam, Epps, and Chen, 2011).

### Engagement Index (EI)

Task engagement is defined as how much the subject is involved in particular tasks on different levels of workload (Kamzanova, Matthews, Kustubayeva, and Jakupov, 2011). EEG engagement index denoted by formula  $(\beta/(\alpha+\theta))$  and has been to classify workload (Berka et al., 2007).

#### (ii) EEG Signal Analysis

EEG signal processing means for operating in some fashion on a signal to extract some useful information from EEG data, different features such as power spectral densities, energy and root mean square (RMS) were extracted from the signal with the help of MATLAB programming.

#### (iii) Neural Network classifiers

We used feed forward neural network based on back propagation algorithm. It is assumed superior classifiers for discriminating workload level (Wilson and Russell, 2003, Wilson and Russell, 2007; Wilson, Estep, and Christensen, 2010; Wilson, Estep, and Davis, 2009). Twenty-five percentage of the inputs

were taken for validation and 20% for training and rest inputs were test data. Linear transformation matrix was used to map between input and output. It had used features  $\times$  channels, matrix for training and testing data set.

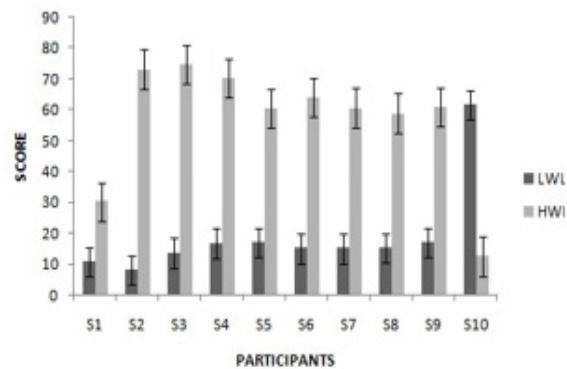
## 3. RESULTS

The overall result was calculated on the basis of psychological (MATB-II test score analysis with subjective score) and physiological (EEGSignal) data analysis separately.

The following three findings were extracted from MATB-II data.

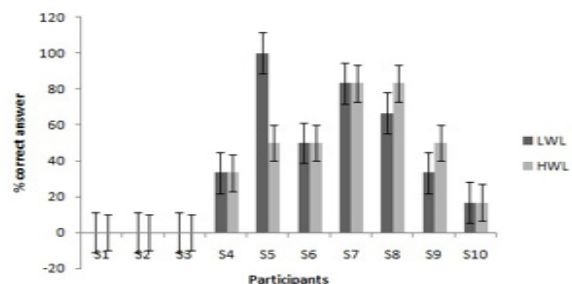
1. Subjective score was calculated using NASA-Tlx scoring and total score displayed in Figure 2 for comparison between LWL and HWL.

**Figure 2.** Total NASA-Tlx score of participants in the MATB-II

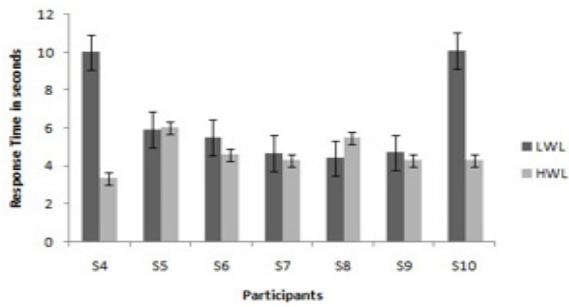


2. Objective score was calculated for system monitoring (sysmon) and tracking task in the form of response time (in second) and Root mean square deviation (RMSD) respectively. In sysmon, percentage of correct responses were more in LWL case for five subjects (Figure 3) and also response time was less for HWL (increase stress sometime improve performance) (Figure 4).

**Figure 3.** Percentage correct responses for system monitoring task

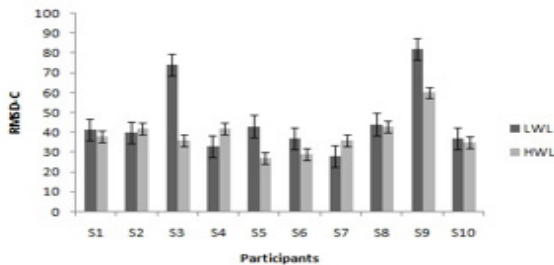


**Figure 4.** Response Time (in second) of system monitoring for participants who gave responses



3. Three subjects were unable to give the response in system as they were unable to shift their attention. Improve performance was observed in a tracking task for HWL as in figure 5. Applying t- test on objective scores, we found:  $t = 1.550$  at degree of freedom = 9 for tracking task at probability = 0.155 and  $t = 1.030$  at degree of freedom = 9 for system monitoring task at probability = 0.330. There were no significant difference between LWL and HWL task of tracking and system monitoring.

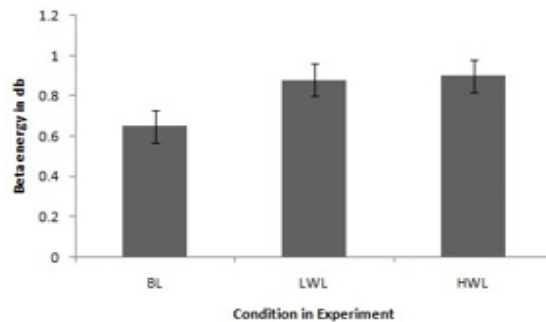
**Figure 5.** Root means square deviation (RMSD) scores for tracking task



Three features are extracted from the EEG signal. To summarize the findings are:

1. Subband energy value was increased as the workload increased for theta [4-8 Hz], alpha [8-13 Hz], beta [13-30 Hz] as showed in figure 6 for channel AF3. More energy was displayed from channels when high attention is required to execute the task.

**Figure 6.** Beta energy for AF3 channel for different condition, energy is summarized among all ten participants. BL=baseline, LWL=Low Workload, HWL=High Workload



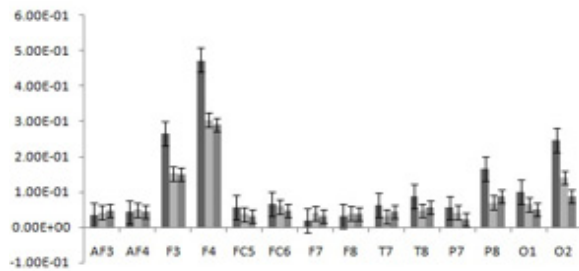
2. The RMS value of gamma sub-band had the most significant difference between NWL and LWL as displayed in Table 1 for all channels.

**Table1.** Significant result on 14 channels for RMS value after applying one way ANOVA. Difference between NWL and LWL after applying post hoc test (Tuckey-d)

Serial number	Channel Name	F Value	P Value
1	AF3	3.772	0.036
2	AF4	3.243	0.055
3	F3	4.042	0.029
4	F4	5.639	0.009
5	F7	3.689	0.039
6	F8	4.584	0.019
7	FC5	5.872	0.008
8	FC6	5.117	0.013
9	O1	6.233	0.006
10	O2	5.451	0.011
11	P7	5.919	0.007
12	P8	6.041	0.007
13	T7	6.972	0.004
14	T8	3.664	0.039

3. The most important channels in Engagement Index (EI) were AF3, AF4, F7 and F8 as we could see an increase in EI with the increase in workload clearly from figure 7.

**Figure 7.** Engagement index for each channel on Baseline (BL), Low workload level (LWL) and high workload Level (HWL)



4. The above mentioned three EEG features were taken as an input for NN classifiers and EI was selected as most appropriate input for workload classification after doing parametric statistical testing.

5. Confusion matrix for all 14 channels had been displayed in Table 2, showed an idea about channel identification for automated operator designing. As per the result accuracy was more on anterior frontal channels while less in temporal channels.

**Table 2.** Confusion Matrix result for classification of NWL, LWL and HWL, after applying NN classifiers with 1000 iteration for channels

Serial number	Channel Name	Percentage Accuracy
1	AF3	90
2	AF4	66.7
3	F3	63.3
4	F4	50
5	F7	70
6	F8	63.3
7	FC5	60.9
8	FC6	63.3
9	O1	50
10	O2	56.7
11	P7	60.9
12	P8	60.9
13	T7	60.9
14	T8	46.7

## 4. DISCUSSION

Workload offloading is often required to reduce error and improve performance in the smart system. It can be done when we acquire

full knowledge regarding operator cognition and system interface. It is evident that workload is task dependent and can vary from individual to individual (Gawron, 2000; Mazloumi, Kumashiro, Izumi, and Higuchi, 2010). The objective of this experiment was to identify the measurement technique that can discriminate the workload and to determine the best possible input EEG feature for classification of workload while designing load balancing logic (i.e. between human and machine) for an automated operating system. We found some answers which could be supportive for objective completion. We discussed three methods to assess cognitive workload, i.e. task score, subjective score and spectral features of the EEG as per Wickens, 1988. Objective scores collected from sysmon and tracking tasks using MATB-II, failed to produce any significant difference. Difference in result failed to correlate the workload level with the performance of individuals. However, we found a subjective score making workload discrimination, but we could not rely on subjective feeling because it was invasive which could be inappropriate for our objective. EEG was reliable and modest measured for workload discrimination (Gevins and Smith, 2003; Gevins and Smith, 2005; Wang, Hope, Wang, Ji, and Gray, 2011). The primary goal was to identify the best EEG feature which could be taken as an input for NN classifiers. Out of three EEG features, i.e. energy, RMS and EI, EI was best identified feature for NN classifiers. In previous studies EI was also identified best correlated feature with workload (Kamzanova et al., 2011). Second goal was to identify the best channels which provided the classification with the highest accuracy. Anterior frontal channels were the most appropriate channels. The third goal was to identify EEG feature which could give discrimination among workload level without adding any classifiers. Gamma sub-band RMS value was qualified to discriminate (except AF4) with significant difference at  $P \leq 0.05$ .

## 5. CONCLUSIONS

To identify measurement technique for workload assessment supplemented designing of automated operator. Objective score failed to discriminate and subjective score succeeds, but they were invasive. We left with only electrophysiological method of workload discrimination that was necessary for designing of automated operator. Therefore, to rely

on electrophysiological measures did become one of the major key in workload classification (Lysaght, 1989; Noyes, J.M. and Bruneau, 2007; Rubio, Diaz, Martin, and Puente, 2004; Verma, 2012). Gamma RMS was identified best feature without adding classifiers and EI was the best feature to be used as an input for NN classifiers. Best selected channels were anterior frontal for workload classification. The limitation of our study could be less number of subjects and channels in EEG. Result based on the onetime assessment of the workload, could have changed in the next assessment. Future direction of work will be based on the overcoming limitation with many time assessments with sufficient number of subjects and channels.

## ACKNOWLEDGEMENTS

The authors would like to thank the volunteers for participating in the experiment, and are grateful for the assistance of Mr. James R. Comstock and Miss Yamira Santiago, NASA Langley Research Centre in providing the software NASA MATB-II. The authors are also thankful to Director INMAS for their support and help during the course of the experiment. This research was granted by INMAS, DRDO, Delhi.

### Conflict of interests

Authors declare no conflict of interest.

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# THE NEED OF STRENGTHENING THE PEDAGOGICAL COMPETENCIES IN TEACHING FROM THE ENGLISH TEACHERS' PERSPECTIVE

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Received: May, 05.2015.

Accepted: May, 25.2015.

Original Article

UDK 371.12.011.3-051:811.111(497.7)

**Abstract.** The traditional concept of the teaching staff continually is expanding and changing not only in the content but in the methodology and in the forms of learning as well because of the permanent change of the social conditions and the advancement of the science and technology. The teacher is a mediator of the knowledge and a key person who realizes the reforms and the teaching processes into practice and that is why the present and the future requires from the teacher qualified, expert and fundamental pedagogical knowledge.

The competencies and the skills as a changeable category mainly recognized and focused on the enrichment and the personal development of someone who learns, besides the initial education implies flexibility as well. Even more it implies improvement of the skills and the knowledge according to the given time frame periods and life conditions by the science and the technology development. During the teachers' initial education there is a need of expanding their pedagogical skills and competencies in order the pedagogical function to be fulfilled in a modern world using the foreign language in the teaching process as a tool for an entry to new resources and innovative techniques of studying.

In the paper there is a presentation of a short comparison of the teachers' competencies in the English linguistic speaking areas and in Macedonia through comparing the educational programs of the higher faculty institutions and colleges. We will present their attitudes and opinions in terms of the level of the acquired competencies in the initial education. The results are to be used in the professional improvement of the teaching competencies of the English language and other subject teachers during their initial education. The research implemented with the teachers in the schools led to the conclusion that there is an immense need of expanding

the teachers' competencies during their initial education.

**Keywords:** *Pedagogical competencies, Teachers of English, Initial education, Primary school.*

## 1. INTRODUCTION

In a modern society, with increased dynamics of everyday changes that interact with the increase of human knowledge in all spheres of life especially in science and technology "the teacher of today" is faced with a lot of challenges in terms of professional capacity to improve the people's life. His role is undoubtedly a major and vital for the social good and there is much effort nowadays in dealing with the everyday challenges in teaching practice because social changes require expanding of the teacher's obligations and knowledge and possessing a wide range of teaching skills. Adequately trained teachers will comply with the modern teaching process and will lead to the desired results so the traditional concept of teaching profile constantly is expanding and changing both in content and methodology and in all forms of learning as well. The systematic development of the capabilities and skills of the teacher goes hand in hand with efforts to apply scientific achievements in teaching based on knowledge and scientific principles. The teacher is the mediator of the updated knowledge and the one who implements the reforms and changes in the educational process so the teaching today requires qualified professional and thorough pedagogical education. The teacher is a mediator between scientific knowledge and social tendency children to learn about the world around them, and "young generation is intended to gather the values through the system of

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education, aimed at development of the existing social system” (Barakoska, 2008).

During the education of teachers in Macedonia who teach English and other subjects as well, there is a need to broaden their pedagogical skills and competencies, in order to achieve their pedagogical function in a modern world using the foreign language as a tool to new sources and innovative teaching techniques. This paper will make a short comparative review of the pedagogical skills of teachers of English language in Macedonia and in English speaking countries. The findings of the survey conducted to 2014. will focus on the promotion of professional pedagogical competencies of teachers of English during their initial education. One goal of the paper is to encourage further research in the field of pedagogical skills of teachers in different subject studies.

The modern character of a teacher today covers a broad concept of a number of activities in and out of the school. All these tasks of the teacher through pedagogical educational components contribute to strengthening the human body and health, social life and concern for others around, as well for beauty, peace, harmony and creativity. The new democratic society requires from the teachers that a student from passive receiver of information and knowledge would grow into an independent organizer of his knowledge and an active citizen in the community.

Therefore besides vocational education teacher should have a thorough pedagogical education. His role is not only to present the knowledge of the subject field but also the ability to manage the complex process of adoption of the knowledge according to the pace and ability of the child and to develop and shape his personality to use the knowledge in the right way. The teacher is a citizen too. Pokonjak will emphasize that the person of the educator cannot be split and therefore his personal properties include the inventory of desired competencies and positive or negative characteristics focus on the two axes of his existence, a teacher – an educator and a person. (Potkonjak, 1968) The teacher is required to be skilled in his work, and the skills and the ability to interpret the knowledge in a manner and level accessible to students requires fundamental pedagogical competencies. Still, we are aware that even in the 21<sup>st</sup> century, full of modern means of communication, information and knowledge transfer, the teacher is the key figure for the proper functioning of the learning process and formation

of young people. His role as an “educator” undoubtedly is great and sacred.

The National Programme for the Development of Education in the Republic of Macedonia 2005-2015, in the Programme for professional development of the teaching staff, it is proposed that this issue should be raised and paid attention to for the long-term professional capacity of teachers in Macedonia in terms of the initial and continuing education and professional development. (National Programme for the Development of Education in Macedonia 2005-2015). Studies suggest changing the curricula of faculties of initial teacher education by supplementing and expanding the curricula. At the same time requirements are set on teacher qualifications or competence application of modern scientific achievements of educational theory and practice, which is modernization of knowledge. That means that the decision should be a new reinforcement of initial training and system for professional development of the teaching staff.

Hence the interest in the problems in this field study and the need for examination of practical experience and views of teaching realization of the objectives of the programs in English in primary education is done by the teachers themselves, from the teachers’ perspective.

Therefore, a research was conducted in schools in order to examine the attitudes, opinions and experience of teachers of English in the implementation of the curriculum in terms of the adequacy of the acquired pedagogical competencies on the higher education institutions and their application in daily teaching practice.

The teacher is the central figure in the teaching process as the essential quality of education depends on his abilities, values and skills. Therefore any investment in human resource teachers is invaluable. Solution is seen in the expansion of the initial teacher education into a higher level in terms of pedagogy strengthening skills, permanent professional development and selection of suitable profiles for teacher profession.

### **1.1. Short comparative study of the educational programs for teachers in Macedonia and England**

The teacher’s competencies are founded in the initial education as a professional component that represents the skills and knowl-

edge of a teacher in the subject he teaches and the pedagogical part. The ratio between these two parts in different educational systems is different. "For example in the USA and Japan, the ratio between these two components is 3:1, France 2:1, in Germany it is approximately equal, and in England-GB (teachers' colleges) the ratio is 2:3. In Macedonia it is at a very inappropriate level (Kamberski, 2000). This ratio clearly indicates that subject teachers acquire initial education which does not meet the needs of the teaching profession." (National Programme for the Development of Education in Macedonia 2005-2015).

If teachers did not study teaching and pedagogical subjects simultaneously at the faculty (in the last 2-3 decades the study consisted only of three courses subjects: pedagogy, psychology and methodology), it could be acquired through a pedagogical qualification at the same or other faculty. "It was important to get a formal certificate rather than professional knowledge, abilities and skills necessary to successfully perform the teacher's profession." (National Programme for the Development of Education in Macedonia 2005-2015). It is said that the Bologna process is of a particular importance in finding adequate solution to this problem. Changes that would occur in the initial English teacher training would lead to compatibility with programs for teacher training colleges and universities in England and would lead to a revival of an educational system that requires active and mobile professionals, initiative teachers who create together with their students and hold the "key competencies" required for modern teaching in the 21<sup>st</sup> century.

The successful teacher of the 21<sup>st</sup> century is constantly active and aware of the changes occurring in local and wider community and the world, so The European Commission of Education as priority points right to the teacher, his mobility, quality, efficiency and key competencies; the national education strategy of Republic of Macedonia as key issues appoints the identifying skills the teachers need to have and professional development programs for teacher training. The opportunity Macedonia to join the European family and citizenship requires not only teachers who are drivers of advancement and change but also who are direct participants in the change.

It is the reason why we decided to make a survey of the attitudes and opinions of the English teachers in particular about their acquired competencies in the initial education at the higher institutions.

## 2. MATERIALS AND METHODS

*The object* of the research is the initial teacher education and training in English language and the need of strengthening their pedagogical competencies at higher education institutions (state universities). The aim of the research is determining the need for more pedagogical subjects in the initial education study programs for teachers of English. The type of the research is fundamental, applied and contemporary, realized in a short time frame. The study is based on the results referring to the quantitative processing of the data through statistical analysis of the answers given by the teachers of English who teach English at primary schools. The respondents are 60 surveyed teachers from 20 primary schools in Macedonia.

*The objectives* of the study are to make a survey about the attitudes of teachers of English in terms of pedagogical courses in higher education curricula; whether they acquire enough general and specific competencies during their study of English language at the universities; in terms of the difficulties encountered in the teaching language process and in terms of strengthening the pedagogical competencies in the study programs at universities through studying more pedagogical subjects.

*General hypothesis:* There is not sufficient content of pedagogical subjects courses in the university study programs for teachers of English in Macedonia.

*Supplementary hypothesis:*

1. The teachers of English consider there is a lack of pedagogical disciplines and course subjects in study programs for teachers of English;
2. They consider they do not possess sufficient pedagogical and specific competencies for the implementation of teaching English at school;
3. They consider that the increased number of pedagogical subjects courses will enhance the pedagogical skills of teachers of English.

In the research *descriptive methods of analysis and synthesis* were applied.

- Descriptive method is used to describe, explain, compare and generalize the phenomena of the subject of research, that is the initial teacher education and pedagogical contents;
- Comparative method is used in describing and comparing teacher education through educational programs for teachers of universities in Macedonia and England;

- Analytical method is applied through the analysis of the study groups and programs that produce teachers, the number of pedagogical subject courses and descriptions of the same with set goals and objectives, criteria and standards for obtaining qualified teaching status and necessary pedagogical competencies;

- Synthetic method is applied in the description of the education and training of future teachers as a whole in the educational systems for the realization of the need to strengthen their pedagogical competencies.

In accordance with the objectives, the research applies the Surveying, Questionnaire and Scaling in order to determine the level of acquisition of pedagogical competencies in teachers' initial education and to note the difficulties encountered as a result of insufficient acquired competencies during the education at the faculties for teachers.

### 3. RESULTS AND DISCUSSION

The questionnaire consists of closed multiple choice questions giving the possibility to the respondents to choose to what extent they agree with the statements; part of them are open ended questions and provide personal data and subjective opinions and attitudes of the teachers. They refer to the description of the curriculum structure of pedagogical disciplines and subjects that prepare teachers referring to the ratio between pedagogical-psychological training subjects and main subjects education. The data are going to be presented numerically and descriptively.

*The first question* intended for teachers of English is an open type and it is as follows: "What are the problems that you have met in the educational process when teaching English in terms of the necessary pedagogical competencies?" We received a number of responses referring to the general and specific competencies, and the list is quite long so the common challenges and obstacles in teaching pointed by the teachers are:

- Working with children with learning disabilities and different abilities and problems; special needs children;
- Gifted and talented students and individual educational plans and their implementation;
- Dealing with violence in the schools;
- Knowledge of the objectives of the curriculum of the corresponding subject and age;

- Knowledge of the Curriculum goals and programs created by institutional bodies;
- Ability to diagnose educational problems and applying appropriate pedagogical approach;

- Managing the pedagogical documentation and records;

- Possessing skills for data collecting in monitoring and evaluation of the educational work;

- Competence in using ICT educational technology related to the objectives of teaching English;

- Interaction in teaching and communicating with children and parents;

- Selection of an appropriate pedagogical model for different age groups and learning styles;

- Multiculturalism and language competence for integration multicultural and multilingual issues in teaching purposes;

- Use of the pedagogical aspect of textbooks and literature in education;

- Knowledge of the levels of an international Frame of Reference for languages; differentiating various international exams (KET, CFE, CAE, etc.);

- Professionalism and ethical principles in educational practice;

- Legislative obligations in the primary education;

- Capacity for interpersonal communication at all levels - teaching and collegial management.

The explanations of the teachers are presented in the order of quantity in their original version in order to have an authentic representation of the teachers' attitude. Furthermore on the list are the following statements:

- Pedagogical problems and discipline are a great challenge;

- Dealing with children with emotional and social problems;

- Learning Styles and tools, methods use for individualizing teaching;

- Dealing with vulnerable group of students, children with emotional problems, children with special needs, problem children, gifted students, etc.;

- Lack of quality mentoring and accompanying introduction to teaching;

- Evaluation and proper monitoring of the students;

- Deficiencies in the textbooks of English especially for classroom instruction;

- Coordination between educational state bodies in terms of school documentation;

- Making pedagogical records, coopera-

tion with parents and their inclusion in educational process, counseling process, emotional groups, destructive behaviors, discipline etc;

- Curriculum planning, annual and thematic planning, law changes in the primary education;
- Assessment and record keeping;
- Skills for monitoring and evaluation in the educational process;
- Implementation of digital content and methodology in correlation to different age;
- Administration and additional teaching hours, number and distribution by grades;
- Skills for communication in a multicultural environment - children, parents;
- Capability to use modern didactic-methodological approaches at appropriate age;
- Development of the children's personality and theories of learning the language;
- Awareness of diversity of different age students and applying different tolerance strategies;
- Adoption of the principles of planning and organization of teaching;
- Knowledge of the code of ethics of the teacher and argumentation solutions.

As we can see the issues that teachers face in everyday practice in the statements as primary they note those related to the educational practice, i.e. related to the teaching; they feel the need for help and solving problems strategies after the graduation. On the list are the following:

- Skills application in planning and organization of the educational process;
- Creating a stimulating learning environment;
- Innovation and use of teaching resources, application of modern teaching strategies, techniques and methods; implementation of strategies for effective teaching;
- Professional communication of a teacher and ethics issues, their initiation and resolution;
- Competence in using ICT technology related to the objectives of teaching English;
- Use of different sources of learning English: literature, poetry, texts, internet sites and others;
- Ability to foster critical and creative thinking in the educational process;
- The concept of lifelong learning and recognition of the need for additional education (CDP);
- Willingness to continuous personal and professional development through individual learning;
- Need for more practice directly related

to the teaching process;

- Need for a thorough and long-term collaboration between the institutions which educate future teachers and schools in terms of practical work;
- It is necessary to introduce new subject pedagogical courses that will prepare future teachers.

**The next question** is also open one and refers to the number of pedagogical courses taught in the HE Department of English. The question is as follows: "How many pedagogical subjects were included in the study program for teachers?" The data are presented numerically to get a clearer picture of the number of pedagogical courses and academic programs that prepare teachers of English. The question is an introduction to the next question and connected with the hypothesis which claims the lack of pedagogical disciplines and courses in education study programs for future teachers. We see that most teachers in initial education studied 2 to 3 subjects directly related to teaching practice, i.e. the number of pedagogical subjects is fairly small. According to the table below, the majority of respondents (67,21%) attended 3 subjects at the academic institution that educates teachers.

**Table 1.** How many pedagogical subjects were included in the study program for teachers?

Question	How many pedagogical subjects were included in the study program for teachers?	Response	
		f	%
Number of subjects	1 subject	1	1,65
	2 subjects	11	18,03
	3 subjects	41	67,21
	4 subjects	5	8,19
	subjects	2	3,28
	more	1	1,64
Total		61	100

We assume that there is a mismatch between the different Higher Education Departments that educate teachers of English in terms of the number of teacher training subjects courses that are offered during the initial training, so that only 1.65% of the teachers have only one or more than 5 subjects in their study group, 18.03% teachers attended 2 subjects and 8.19% of respondents attended 4 subject courses.

**The question number 3** is of an alternative type and tries to give a global overview of the issue in terms of the required number of pedagogical subject courses in the initial education or whether the current number represented has met the needs of teachers in the acquisition of pedagogical and specific competencies. The question is the following: "Do you consider this number of subjects to be sufficient?"

We can see from the given results that teachers are expressing clearly the need for further study of pedagogical subjects in their study group in order to be prepared to meet the challenges of modern teaching. A great percentage of 90.16% believe that the current number of subjects in their pedagogical education study group is very low, and only 9.84% of respondents say that this number is sufficient. What emerges as a conclusion is the need of standardization of the different faculties study programs for teachers concerning the number of the pedagogical subjects studied.

**Table 2.** Do you consider this number of subjects to be sufficient?

Question	Do you consider this number of subjects to be sufficient?	Response	
		f	%
a.	Yes	6	9,84
b.	No	55	90,16
Total		61	100 %

The table figures comply with the hypothesis which refers to the positive attitudes of teachers in terms of increasing the number of pedagogical subject courses.

**The question number 4** is built upon the previous results and aims to confirm the necessity of new program teaching disciplines and subjects related to teaching and the education of future teachers. We conclude that even a larger number of respondents 90.16% consider the need for greater number of pedagogical subjects in the study programs that educate teachers of English. The question is alternative one and is as follows: "Do you think there is a need for additional pedagogical subjects in the study programs that educate teachers of English?"

- a. I consider they are insufficient
- b. I consider they are sufficient"

The numerical display table is following:

**Table 3.** Do you think there is a need for additional pedagogical subjects in the study programs that educate teachers of English?

Question	Do you think there is a need for additional pedagogical subjects in the study programs that educate teachers of English?	Response	
		f	%
a.	Yes, I consider they are insufficient	55	90,16
b.	No, I consider they are sufficient	6	9,84
Total			100

In addition to the above conclusion and hypothesis are the results from the **question number 5** in the questionnaire which relates exactly to the the increased number of pedagogical subject courses and the strengthening

teachers' competencies. Satisfactory is the fact that most of those surveyed teachers are positive (70.49%). The question is of a selective type and is as follows: "According to you, to what extent will the bigger number of pedagogical subject courses in education curriculum for English teacher enhance their pedagogical skills?"

- a. They will be strengthened a lot.
- b. They will be partly strengthened.
- c. They will not be strengthened at all."

The quantitative results on this issue are displayed in the table number 4.

**Table 4.** According to you, to what extent will the bigger number of pedagogical subject courses in education curriculum for English teacher enhance their pedagogical skills?

Question	According to you, to what extent will the bigger number of pedagogical subject courses in education curriculum for English teacher enhance their pedagogical skills?	Response	
		f	%
a.	They will be strengthened a lot.	43	70,49
b.	They will be partly strengthened	16	26,23
c.	They will not be strengthened at all.	2	3,28
Total		61	100

## 4. CONCLUSION

At the end of the analysis and interpretation of the questionnaire there is a need to summarize the results into a conclusion. Based on the data we make the following conclusive findings concerning the views of teachers about their pedagogical and specific competencies: teachers recognize their teaching skills and the need to extend them by studying additional pedagogical subjects and more disciplines in the study group for teachers at the Higher Institutions. They point out the lack of bigger part of the pedagogical necessary competencies in the initial education:

- Teachers do not acquire many competencies in terms of monitoring and evaluation of the educational work of all participants in the educational process;
- Most after graduation do not know the purpose of the curriculum objectives of the main subject for different age groups;
- They possess insufficient skills for innovation of the educational process and are not thoroughly trained to use the modern didactic-methodological approaches for the implementation of effective teaching strategies, methods and individualization in teaching;
- They are not sufficiently trained to create individual educational plans and to choose

the appropriate pedagogical model for a different educational group;

- Teachers after graduation do not feel ready to make pedagogical records and documentation in the school;

- Multicultural environment and communication at various levels (parents, children, and colleagues) is also a big challenge for the teachers;

- Teachers are not trained for business and professional performance in terms of commitment to moral principles in educational practice and professional ethics in communication and relationship issues;

- They are partially capable of applying the skills of planning and organization of the educational process;

- Teachers do not possess the competencies and knowledge in terms of the development of the children's personality and theories of learning the language according to the appropriate age;

- They do not feel confident in establishing correlation in the planning between the teaching of English and other subject areas;

- They know little about the International Reference Framework languages levels and skills;

- They need a more reflexive practice and commitment to the integration of multicultural and multilingual competence in teaching aims;

- They are not familiar with the primary education legislation;

- Very few are prepared for continuous personal and professional development;

- They encounter a lot of difficulties when working with special needs children and creating individual learning plans, violence in the schools, educational issues, information technology and administration, communication with parents and counseling procedures etc.

Based on the analysis, description and interpretation of the results we conclude that the hypothesis are fully confirmed. We consider necessary to provide recommendations and guidance on strengthening the pedagogical competencies of future teachers of English:

1. Change in curricula programs at higher education institutions:

- Regarding the pedagogical subjects courses and increase their number and the need to correlate them with other discipline courses study for teachers;

- A change in the program objectives in the preparation of future teachers regarding several related disciplines; students in all de-

velopment phases; professional tasks and criteria; educational bodies, authorities, institutions and environment;

- Strengthening the pedagogical skills of teachers by introducing special subjects that will provide the knowledge, skills and abilities to work with students with special needs and difficulties in learning; skills for communication in a multicultural environment; keeping the pedagogical documentation and records and more;

- Cooperation with educational bodies outside the country and share experiences concerning related program curriculum objectives of the study groups preparing teachers.

2. Amendments and changes of the educational practice and evaluation of a teacher:

- Increase the time frame of the practical training of teachers and its expansion within the primary education (from the first to the ninth grade);

- Establishment of multi-merit system of evaluation of teachers who will be supported adequately depending on the level of the professional development from the entry status as a newly - qualified teacher to the high scale of professional teaching employee with systematic evaluation by senior mentor teacher.

3. Specifying the criteria and standards for professional teacher status and quality teaching.

4. Additional forms of training the teachers as a result of insufficient pedagogical competencies acquired in initial education and teaching practice.

These recommendations are the starting points for further research in other faculty study groups that educate future teachers and for the reforms in general:

- Research in the other teaching faculties language groups and subject areas;

- Establishing standardized taxonomy of competencies (pedagogical and specific) of subject teachers towards the criteria for excellence in teaching;

- Continuous motivation for lifelong learning and objective evaluation of the quality of a teacher;

- Improving the educational process and the status of the teacher of the 21<sup>st</sup> century.

### **Conflict of interests**

Authors declare no conflict of interest.

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# LEISURE TIME FOR SECONDARY SCHOOL STUDENTS

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Received: May, 14.2015.

Accepted: June, 01.2015.

Original Article

UDK 379.8-053.6(497.7)

**Abstract.** Today, in education prevails the paradigm that is geared towards the complete and varied development of a person. This implies the development of the students ability for self-determination towards various other perspective offered by contemporary social residence. Meanwhile in the time of adolescence, the youth experience serious crises regarding their identity, in which the free time and the activities during the free time can be positively used with a cause to be interrupted unconstructive and chaotic use of the free time by the youth. In this thesis are being analyzed the contents and the ways with what the secondary school students in the Republic of Macedonia fulfill their free time outside the school, specifically there will be an examination about the gender differences i.e. the amount and manner of spending their free time. In the approach to the study of the problem of research, we decided to apply: inductive method, deductive method and the method of comparison.

**Keywords:** *Leisure time, Student, Extracurricular activities, Culture, Activities structured, Unstructured activities, Gender differences and the amount of free time.*

## 1. INTRODUCTION

The modern society has drawn with itself less free time to spend it qualitatively. According to the analysis of the different conceptions of leisure time we can say that:

- Leisure time is socially conditioned phenomenon, as a class and historical, is conditioned by economic, cultural, scientific and technological development, etc.
- Presents an integrated part of human life, wherein people through leisure activities develops, builds, actually it develops their work and their individual essence (being).
- Is stained with different values, which are expressed through numerous leisure activities.
- Represents (relative) freedom in se-

lecting these activities (Kačavenda Radić N., 1989).

It means that free time provides an opportunity to students' personality to form, implement, and socialize, this time actually enables to the young person to get closer to the real world, respectively the world that surrounds it. How young people spend their leisure time, it is one of the most important designing that actually determines their way of living. For the young there is almost no more important time than their leisure time. Precisely at the moment the pressure from the families, the burden of school and the family responsibilities will cease, then this remaining time is the time where young people feel at the same time allocated for it. To avoid various deviant behaviors among young people, we should be very careful, as to how to prepare them to face different social changes (challenges), how to organize and build a culture of proper buildup and spending leisure time. Leisure time is a social phenomenon that requires a thorough approach in all spheres of life. It is the time when we recognize the man as homo univertalis, homo ludens and homo autocreator (Schaff, A., 1989).

Nowadays leisure time exists as a social phenomenon and is a composed part of every person's life. The problem that exists is how to prevent unconstructive use of leisure time, which is a component part of everyday life for young people. It is a time in which the student can live in harmony with its individual nature, in which can affirm and develop its properties. It is an important device for rest, recreation, turning away from everyday worries and burdens, an important factor for the development of personality (Бапакоца, А., 2005).

If leisure time is a time of certain activities, then the question arises: What are these major activities that affect the formation of the culture of leisure time?

So the main problem is with what kind

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of activities is fulfilled that time. Leisure time can be fulfilled in a constructive and socially acceptable way and constructive unacceptable harmful use of leisure time. Nowadays under the blows of the commercial entertainment industry young people are more inclined towards constructive use of leisure time (Костова et al., 2005).

Thereby its very important and the society itself to show proper care not only for providing greater productivity of labor, but also for the use of leisure time, why cannot be all the same "if the individual their leisure time is spending in a way that degrades or in a rich and developed, respectively he is able in their activities to bring real cultural content and meet those needs and work experience that the job did not come to the fore" (Дамјановски, А., 1969).

On the other hand the author R. Popova says: "Fact is that nowadays, the cultural needs of the person mark a drastically rise, and in society exist various sources of their satisfaction, starting from kitsch and trash, until real art (music, art, film, literature) with high qualitative and artistic values" (Popova, R., 1999).

Here actually fall mass media, TV, radio, social network (Facebook, YouTube, etc.), then printing, etc., that provide quality programs among which there are various educational programs. But the question is how they are "consumed" by the youth. Therefore, studies conducted worldwide have shown that "Quality programs that are less listened and watched, but, therefore again, where there are more TV channels and several radio stations, artistically the weakest programs attract the largest number of viewers" (Langran, P., 1976).

These programs do not actually contribute to the development of culture for constructive use of leisure time by youth, and to not mention the various social networks that despite the positive aspects, which in moderation develop, there are many negative consequences that deeply affect the general development of the young person. In this context the author A. Damjanovski says: "To liberate youth to use their free time in a manner worthy of man" (Дамјановски, А., 1969).

In the approach towards the examination of this phenomenon is necessary to achieve the required consistency and verification of the scientific research procedures collection and processing of the empirical data Analysis, interpretation and explanation of the results, extraction of the adequate conclusions will be based upon the application of adequate

methodological procedures that will secure the stated realtions, according to the nature of the researched phenomenon. Notably the phenomenon of free time among young people represents distinctively complicated appearance from the perspective of the phenomenology and etiological factors which serve its appearance and existence. Because insufficient theoretical and empirical knowledge of the problem, we believe it is beneficial for our society to be investigated the content with which the secondary school students fill their free time outside of school. In the project will be analyzed the quantity and usage patterns of leisure time secondary school students in Republic of Macedonia. For operationalization of the purpose of the research we put one general and three auxiliary hypotheses.

The general hypothesis: *The pleasure with the way spending leisure time in secondary school students is aimed at establishing a Culture of the usage of the leisure time.*

Auxiliary hypotheses:

1. *High school students female and male gender are differentiated by the amount, manner and degree of overall satisfaction with the passage of leisure time.*

2. *High school students female and male gender are differentiated by the proportion of organized and unorganized forms of free leisure time activities.*

3. *High school students female and male gender are differentiated by the degree of use of the principle of free choice in the leisure activities.*

## 2. MATERIALS AND METHODS

In our research participated all together 100 high schools students in Macedonia, from whom 52 were males and 48 females. We used a combination of qualitative and quantitative approach, were the qualitative approach was conducted through observation using the diary as an instrument for collecting the data, whilst the results where analyzed with the technique called interim, were we code the answer, indexed them and group it to an appropriate category.

## 3. RESULTS

In the interest of the labor below we will present the obtained results through observations about gender differences in spending leisure time among our respondents (secondary school students). Firstly, we were inter-

ested whether there are differences between the genders in terms of the amount of leisure time. The nonparametric Mann–Whitney test indicates statistically significant difference ( $Z = -2.671, p < 0.01$ ) between the two genders in the amount of free time, based on an assessment of the interrogated. Male respondents obviously have more free time compared to their peers, which is good reflected in the attached cross table.

**Table 1.** Amount of free time (how do the surveyed high school males and females spend their free time)

		How much free time did you have today?		Total
		F	M	
1.0 or less hours	Received scores	5	1	6
	Anticipated scores	2.9	3.1	6.0
2.30 hours	Received scores	28	22	50
	Anticipated scores	24.0	26.0	50.0
4 hours	Received scores	14	27	41
	Anticipated scores	19.7	21.3	41.0
5 and more hours	Received scores	1	2	3
	Anticipated scores	1.4	1.6	3.0
Total	Received scores	48	52	100
	Anticipated scores	48.0	52.0	100.

The data related to who do the free time is spend with are tested with the test of the significance of differences between the arithmetic means of the independent samples (t-test), whereas the existing stereotype that girls most of their time spend within the circle of their family is partly confirmed by the received results. If they spend their free time alone, there are no statistical proofs for a difference between the two genders ( $t = 1,033, df = 98, p = 0.304$ ), but if the free time is spent together with the family members, then the difference is statistically significant towards the females ( $t = 2.107, df = 98, p < 0.05$ ). On the other hand, boys prefer to spend their free time with their friends, away from the domestic atmosphere ( $t = 3.300, df = 98, p < 0.01$ ), which can be better seen on the attached Table 2.

**Table 2.** How do the surveyed high school males and female spend their free (with whom)

Where did you spend most of your free time?	N	M	
I spent my free time at home (how many times of total 10 days)	F	48	3.73
	M	52	1.58
I spent my free time outside, in pen premises – in the city or park (how many times of total 10 days)	F	48	3.08
	M	52	3.27
I spent my free time in open premises – at friends, bars etc. (how many times of total 10 days)	F	48	3.50

For additional knowledge about the mode (manner) of the spending of free time, the surveyed were asked to identify where

they spend their free time predominantly. The results of the junctions of the variables firstly prove the just presented data that girls spend their free time mostly in domestic atmosphere ( $t = 12.360, df = 98, p < 0.00$ ). There are not found differences between the two genders regarding the spending of free time outside, in open air premises ( $t = 0.701, df = 98, p = 0.485$ ), but there exists a statistically significant difference by the males when the free time is spent outside the house in closed premises, bars, betting shops, night entertainments etc ( $t = 5.963, df = 98, p < 0.000$ ), which is seen in the following Table 3.

**Table 3.** How do the surveyed high school males and females spend their free (where, in which premises)

Who did you spent your free time with?	N	M	
I spent my free time alone (how many times of total 10 days)	F	48	2.00
	M	52	1.71
I spent my free time with my friend (how many times of total 10 days)	F	48	4.06
	M	52	5.27
I spent my free time with my parents (how many times of total 10 days)	F	48	3.92
	M	52	3.06

We also surveyed the gender differences at the extent of the total satisfaction from the own free time. Non-parametric Mann Whitney test is statistically significant ( $z = 3.056, p < 0.01$ ) which means that there exists a difference between the two genders according to this variable. The qualitative insight in the crossed table indicates clearly that the surveyed males declare more frequently that are satisfied with their free time.

**Table 4.** Satisfaction from the manner of how the surveyed high school males and females spend their free time

How much are you satisfied from the way you have spent your free time?			F	M	N
Not satisfied at all from	10-16 (In a 10 day)	Received scores	1	0	1
		Anticipated scores	0.5	0.5	1.0
Partially satisfied from	17-23 (In a 10 day)	Received scores	31	19	50
		Anticipated scores	24.0	26.0	50
Very satisfied from	24-30 (In a 10 day)	Received scores	16	33	49
		Anticipated scores	23.5	25.5	49
Total		Received scores	48	52	100

According to the above elaborated results through which are examined the amount, manner and satisfaction from their free time of the high school pupils, is also proved the first auxiliary hypothesis: H1-Female and male high school pupils differ among themselves according to the amount, manner and the degree of total satisfaction of their free time.

The following section of the crossing between the variables is about the testing of gender differences according to the degree of organization (structuring) of the free time. From the received results be categorically claimed that there exist differences between the two genders. The received differences between the arithmetical means (t-test) are not relevant, but the fact that the values are near the limits for statistical relevance suggests that such association should not be a priory excluded. In our case, concretely, there exists a tendency that males prefer more the practice of the unorganized forms to spend their free time ( $t=1.674$ ,  $df=98$ ,  $p=0.097$ ), while females prefer organized forms ( $t=1.597$ ,  $df=98$ ,  $p=0.113$ ).

**Table 5.** Gender differences according to the degree of organization (structuring) of free time

Were your free activities imposed by the parents, friends, mass culture, or were they your own choice?		N	M
They were my choice!	F	48	5.48
	M	52	6.06
They were imposed to me!	F	48	4.62
	M	52	3.90

From here our second auxiliary hypothesis: H2-, Female and male high school pupils differ among themselves according to the ratio of organized and unorganized forms of activities in free time,, is partially proved.

We were also interested about the representation of the principle of free choice among young people when choosing the free activities. The crossing of these data with the gender affiliation indicates that this principle is highly more present among males. With other words, males declare significantly more than girls that they choose their free activities according to their own interests ( $t=2.029$ ,  $df=98$ ,  $p<0.05$ ). Analogous, among females is more present the occurrence of imposition by other people (parents, school) when choosing free activities ( $t=2.536$ ,  $df=98$ ,  $p<0.05$ ).

**Table 6.** Representation of the principle of free choice among the young people when choosing free activities

With which activities did you fulfill your free time?		N	M	SD
Unorganized, unstructured individual and social activities	F	48	4.94	1.838
	M	52	5.46	1.260
Organized, structured social and individual activities	F	48	5.04	1.856
	M	52	4.54	1.260

According to the received results we can conclude that our third auxiliary hypothesis H3 is proved:

„Female and male high school pupils differ among themselves according to the degree they use the principle of free choice in free activities,,

Besides the statistical processing of the results obtained through the registration in diary in duration of 10 days where each student had to take notes about what they do in their free time, the same results were also elaborated in qualitative (descriptive) manner. In addition, we will list only some of the obtained results related to the satisfaction, manner and compliance of free time.

From the total number of 100 high school pupils who were surveyed, we had more answers and notes about that both male and female pupils, spend their free time mostly in unstructured general activities, by claiming that they fulfill their free time with passive activities, which means they are prone to the unstructured way of spending their free time, but a great deal of the surveyed 40% who were included in various non-formal activities, as for example: the Respondent 5-I.S.who trains each week in the basketball club, or the Respondent 8 – M. V. also from Tetovo who is a member in a humanitarian organization etc, indicate that for these pupils the free time activities are an important factor in the overall development of their personality, at the same time they showed a greater satisfaction about their free time, contrary to their peers who simply filled their free time with passive activities. Moreover, they already had a more positive regime of their free time, who spontaneously and partly in imposed manner, they contributed in the formation of the culture of the leisure usage by the youth.

From the above mentioned data and the obtained results, the commenting and confirmation of the auxiliary hypothesis, we can conclude that our general hypothesis is also proved:

“The satisfaction with the manner of the spending of free time of the high school pupils is in the function of the formation of the culture of leisure usage.”

## 4. DISCUSSIONS

According to the theoretical basis and the attached results, is illustrated the fact that the organization of free time appears as an important factor for: the emancipation of the

personality of young people, creates conditions for leisure, active recreation, opportunity for socialization and humanization, raises the self-esteem, with one word it has a great impact in the development of the personality, wherein to the youth are given more opportunities and choices for correct and constructive usage of the free time.

Based on the above we consider that in youth we need to develop authentic cultural, artistic, moral, aesthetic, physical and work values, skillfully selecting those negative and those providing inappropriate entertainment and escape from constructive use of leisure time. Starting from that the leisure time is the time that is available to the person of a young man, while deprived of obligations (school, family and social), we believe that this part of their everyday lives should be filled with organized activities, activities that offer an opportunity to overcome the passivity of the young man, but always respecting the principle of free choice.

## 5. CONCLUSIONS

The analysis of the theoretical debates on this problem as well as the empirical data that came in the research using the technique diary of activities of secondary school students, enabled us enlightenment of some aspects of the studied problem, at the same time have enabled and confirmed the general and both the of the auxiliary hypotheses (H1 and H2), While in the same time partially was rejected the auxiliary hypothesis H3 which stated: High school female and male gender are differentiated by the ratio of organized and unorganized forms of free leisure. "The conclusions of this research should be upheld in order to further improvement and enrich the leisure time of young people organized and structured activities in order to prevent and avoid unwanted behaviors among youth Given that leisure time is the time that is available to the young person himself time deprived of obligations (school, family and social) we consider that this part of their everyday life should be filled with organized activities, activities that provide an opportunity to overcome the passivity of the young person and also influencing the formation of the culture of free time. Since the question arises: In which way we should lead the youth to use their free time and how certain factors affect?

Than we simply offer freedom in choosing activities, which in no way constitutes

commitment or a sense of obligation but on the contrary it is a sense of fulfillment and inner freedom. But while young people decide their leisure time to spend on passive and disorganized manner, for example. conscious waste of time for no reason, unduly spending time in bars, clubs, restaurants, playing poker, or computer games, Then consumption of different narcotic substances, etc., then arises the need of choosing leisure time activities to lead in a positive direction, which will raise the awareness of young people. Because of this fact have high responsibility all educational and social institutions to commit towards offering a variety of organized activities, activities that provide opportunities for proper and mature development of values, feelings, attitudes, knowledge, skills and behaviors of young people because since the way of spending free time is left to the various individual negative factors it could negatively affect the taste and cultural use of leisure time therefore we should be very careful when it comes to the needs and opportunities of the youth in the fulfillment to his leisure time.

## ACKNOWLEDGMENTS

This paper wouldn't have been compiled together without the moral and intellectual support of Prof.dr. Aneta Barakovska, to whom we express our infinite gratitude for her time and effort invested in us. Also we would like to thank the students of high schools that participated voluntarily in the research.

### Conflict of interests

Authors declare no conflict of interest.

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## CASE REPORT: THE USE OF WISC-IV IN ASSESSING INTELLECTUAL FUNCTIONING

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Received: January, 01.2015.

Accepted: February, 26.2015.

Original Article

UDK 159.95.072

**Abstract.** The purpose of this paper is to provide detailed description of clinical assessment of the Wechsler Intelligence Scale for Children-Fourth Edition (WISC-IV) that can be used by clinicians to assess the level of intelligence of children and adolescents. The WISC-IV is a standardized intelligence test provides essential information and critical clinical insights into a child's cognitive functioning. Literature review and analysis of how to interpret the WISC-IV are described. A psychological report of a 15 year African girl with the use of WISC-IV is reported and clinical impression is given. Information from several sources including interviews with parents, test scores and behavioral observations were used to develop a hypothesis about the child's skills. Her Full Scale IQ of 125 is classified in the superior or higher range of intelligence. Recommendations about how to address problem areas are discussed.

**Keywords:** *Wechsler intelligence, Cognitive functioning, Psychological report, Assessment, Children.*

### 1. INTRODUCTION

The Wechsler Intelligence Scale for Children - Fourth Edition (WISC-IV) is the latest edition of the Wechsler scale for children 6 to 16 years old (Wechsler, 2003a, 2003b). According to Sattler and Dumont (2008) the WISC-IV has many strengths that include its excellent standardization, good overall psychometric properties, useful diagnostic information, inclusion of Process scores, generally good administration procedures, good manuals and interesting test materials, helpful scoring criteria, usefulness for children with some disabilities and extensive research and clinical literature with prior versions of the test.

### Overview of the WISC-IV

The first edition, the Wechsler Intelligence Scale for Children (WISC), was published in 1949. as a downward extension of the adult intelligence test called the Wechsler-Bellevue Intelligence Scale (Wechsler, 1939). It was followed by the revision in 1974, called the Wechsler Intelligence Scale for Children - Revised (WISC-R). Another revision, the Wechsler Intelligence Scale for Children-Third Edition (WISC III) was published in 1991. The staff of PsychCorp prepared the last two revisions, still cited David Wechsler as the author, even after his death in 1982. The test was revised in order to (a) improve its theoretical foundations, (b) improve its psychometric properties, including providing a more recent norms, (c) enhance its clinical utility and increase developmental appropriateness, and (d) increase user friendliness (Sattler and Dumont, 2008). The WISC-IV was standardized on 2200 children ranging in age from 6 to 16 years children with 11 age group were selected to represent children in the United States (Sattler and Dumont, 2008). The one exception was for the Arithmetic subtest, which was standardized on 1100 children. Stratified sampling was used to obtain the demographic characteristics of age, sex, race/ethnicity, geographic region, and parental education (used as a measure of socioeconomic status). Each age group was made up 100 boys and 100 girls, except in the Arithmetic standardization group, which had 50 boys and 50 girls in each age group from Euro American, African American, Hispanic American, Asian American, and other. The four geographical regions sampled were Northeast, South, Midwest, and West (Sattler and Dumont, 2008).

There are 10 core subtests and 5 supplemental subsets in the WISC-IV (Sattler and Dumont, 2008). Verbal comprehension comprises similarities, vocabulary, and comprehension (three core subtests) and Information

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and Word Reasoning (two supplemental subtests). Perceptual Reasoning comprises Block Design, picture Concepts, and Matrix reasoning (three core subtests) and Picture Completion (one supplemental subtest). Working memory comprises Digit Span and Letter - Number sequencing (two core subtests) and Arithmetic (one supplemental subtest). Processing speed comprises coding and Symbol Search (two core subtests) and cancellation (one supplement subtest). The WISC-IV yields seven process scores: Block Design No Time Bonus (DSB), Longest Digit Span Forward (LDSF), longest Digit Span Backward (LDSB), Cancellation Random (CAR), and Cancellation Structured (CAS).

The WISC-IV uses standard scores ( $M=100$ ,  $SD=15$ ) for the four Indexes and for the Full scale IQ and scaled scores ( $M=10$ ,  $SD=3$ ) for the 15 subtests. The Full Scale IQ is computed by comparing the sum of children in the child's age group. After each subtest is scored, raw score points are summed and converted to scaled scores for the child's own age group (Sattler and Dumont, 2008).

Sattler and Dumont (2008) indicates that the WISC-IV is considered to have outstanding reliability. For example, the four individual composites and the Full Scale have internal consistency reliability coefficients of 0.81 or above over the entire age range covered in the standardization group. Test-retest reliability coefficients indicate that the WISC-IV generally provides stable Indexes and Full Scale IQs. The WISC-IV Full scale IQs range from 40 to 160 at all ages of the test, though the range is insufficient for children who are extremely low or extremely high functioning.

#### **Family Background and Home Environment:**

Environmental factors that influence children's intellectual developments and functioning in their prenatal and early development include nutrition; family background and home environment; poverty; schooling and cultural variables. These varieties of conditions can be categorized into three main variables, which are; prenatal variable, general birth process variable and Neonatal variable (Sattler, 2008). Prenatal variables are conditions which occur during the period of pregnancy include abnormalities; infections and illnesses in the mother; radiation; prenatal stress; exposure to alcohol, drugs, or environmental toxins; and injury. According to Alcock and Bundy (2001), several types of infections in pregnant woman that can cause severe mental retardation include rubella, syphilis,

or cytomegalovirus. Encephalitis, meningitis, cerebral malaria, human immunodeficiency and virus (HIV), and Lyme disease are infectious diseases can interfere with infants' and children's intellectual development.

The maternal use of heroin, cocaine, alcohol, and marijuana are drugs that affect both prenatal and postnatal intellectual development in children (Asanbe and Lockert, 2006; Willford et al., 2006). Family Background and Home Environment Factors associated with family background and home environment are significantly correlate with children's IQs (Lawlor et al., 2006; Lawlor et al., 2006). Persistent poverty has more detrimental effects on children's intelligence test scores and school achievement than does transitory poverty. The cognitive functioning of children living poverty is often diminished because of high rates of maternal prenatal complications, reduced access to health-promoting resources (e.g., doctors, clinics, information), increased exposure to lead, inadequate nutrition, and inadequate homebased cognitive stimulation. These factors may also affect brain development and consequently intellectual development (Noble et al., 2010). The quality of a school plays a minor role in individual differences in IQ. Between 2% and 10% of the variance in children's cognitive functioning may be associated with school quality (Bouchard and Segal, 1985). However, there is a high correlation between years of schooling completed and IQ. The evidence suggests, however, that each extra year of education adds 1 to 3.5 points to an individual's expected adult IQ (Bouchard and Segal, 1985; Ceci, 2003). Berry (2001) maintains that intelligence is shaped by the survival skills needed by people in a culture. For instance, well developed visual discrimination and spatial skills are essential in a culture where hunting is emphasized, whereas reading and writing skills are important in a literate society. Acquired knowledge is influenced by the way a culture stores and transmits knowledge and by how individuals in the culture extract information from their environment. Thus, intelligence develops within a cultural context, and cultures differ in how they value different mental abilities (Nisbett, 2010).

The psychological report is a case study that illustrates the application of a recommended practice based on the administration of the WISC-IV to a 15-year old girl whose parents gave the examiner permission to administer the test to her child for educational purposes. The case provides a good example

of how information from several sources—including interviews with parents, test scores, consultation with the teacher and behavioral observations were used to develop a hypothesis about the child's skills and recommendations about how to address problem areas. Her Full Scale IQ of 125 is classified in the superior or higher range of intelligence. The names in the study are fictitious for confidentiality and pedagogical reasons. The interpretive report for the WISC-IV is designed for use in educational evaluation and counseling for graduate students. Readers should note that no referral or placement should be made solely on the basis of the WISC-IV report without confirmation from other sources.

## 2. MATERIALS AND METHODS

The materials used for the assessment include the 10 core subtests and 5 supplemental subsets in the WISC-IV are made up of the: Comprehension Index (VCI) - measures verbal concept formation, verbal reasoning, and knowledge acquired from one's environment (Wechsler, 2003b). The subtests include: Similarities subtest measures verbal concept formation and reasoning. The Similarities subtest requires the child to describe how two objects or Concepts are similar (Chen, H. et al., 2009). Compared to other verbal comprehension subtests such as Vocabulary and Information, this subtest appears to require relatively more inductive reasoning (Chen, H. et al., 2009).

Vocabulary subtest measures word knowledge and verbal concept formation. For picture items the child named the object presented visually. For verbal items, the child defined words that are presented visually and orally. Comprehension subtest measures practical reasoning and judgment in social situations. The subtest requires explanation situations, actions and activities and provides one's ability to understand situations and provide answers to specific problems (Sattler and Dumont, 2008). The child answered questions based on her understanding of the questions. Information subtest measures how one is able to acquire, retain, and retrieve general factual information. The child answered questions that address a broad range of general knowledge topics. Perceptual Reasoning Index (PRI) - measures perceptual and fluid reasoning, spatial processing, and visual motor integration (Wechsler, 2003b). The sub tests include: In the Block Design subtest, child is asked to

recreate a design when viewing a model or a picture. It mainly requires visual processing ability, including perceptions of spatial relations and mental manipulations of visual patterns (Chen, H. et al., 2009).

Picture Concept subsets measures abstract categorical reasoning ability. The child is presented with rows of pictures and was to choose one from each row to form a group with a common characteristic. Although mainly requiring inductive ability, it also involves general information or verbal mediation (Chen, H. et al., 2009; see Flanagan and Kaufman, 2004). Matrix Reasoning. This subtest generally requires manipulating abstractions, rules, generalizations, and logical relationship (Chen, H. et al., 2009). The child selects the response option that completes the matrix or series (Chen, H. et al., 2009). For the Picture Completion subtest, the child is asked to name or point to the important part missing from a picture within a specified time limit (Chen, H. et al., 2009). This task involved visual processing and general information abilities (Chen, H. et al., 2009; see Flanagan and Kaufman, 2004).

Working Memory Index (WMI) - requires working memory processes to manipulate orally presented verbal sequences (Wechsler, 2003b). Or to simply orally presented sequential information. The sub tests include: Digit Span subtest measures working memory, requires repeating a series of digits (Sattler and Dumont, 2008). For Digit Span Forward, the child is asked to repeat the digits as given (Sattler and Dumont, 2008). For Digit Span Backward, the client was made to read a sequence of numbers and recalled the numbers in reverse order.

Letter-Number Sequencing subtest measures sequential processing and short-term auditory memory (Sattler and Dumont, 2008). The child read a sequence of numbers and letters and recalled the numbers in ascending order and the letters in alphabetical order. Arithmetic is a supplementary Working memory subtest that requires solving simple to complex arithmetical concepts and numerical reasoning (Sattler and Dumont, 2008). Working within a specified time limit, the child mentally solved a series of arithmetic problems. Processing Speed Index (PSI) - requires visual perception and organization, visual scanning, and the ability to use hands and eyes efficiently (Wechsler, 2003b). The attention factor is two minutes.

The sub tests include: coding. This subtest requires children to copy symbols paired

with simple geometric shapes or numbers within a specified time limit (Chen, H. et al., 2009). Besides measuring the processing speed, successful performance on this task may also indicate recall ability (Chen, H. et al., 2009). The child completed this subtest using a response booklet. In the Symbol Search subtest, the child is required to scan a search group and rapidly indicate whether the target symbol(s) matches any of the symbols in the search group. This task involve both processing speed and the ability to perceive and think with visual stimuli (Chen, H. et al., 2009; see Keith et al., 2006). The child completed this subtest using a response booklet. The Cancellation subtest measured visual-perceptual recognition and speed of visual processing (Sattler and Dumont, 2008). The subtest requires scanning both a random and a structured arrangement of pictures, and marked target pictures within a specified time limit. The child completed this subtest using a response booklet, and not on his or her digital device.

Analyzing the Psychological Wisc-IV report:

Identifying data: This section provides traditional identifying data, such as name, date of birth, age, date of evaluation, date of report, and grade. Other information may include home address, phone number, and name of school. (In actual practice, the child's last name would be included in the section of the report (Dumont and Rapport, 2008)

Test (s) administered: This section cites the name(s) of the test(s) administered and the test scores.

Reasons for referral: This section begins the narrative portion of the report and explains the reason for the evaluation. It documents what the examiner perceives as the purpose for the evaluation and who initiated the referral (parent, teacher, court). This section also helps to develop the focus of the recommendations and contains information about the child that is related to the referral question. In this report, it indicates that the child was tested so that the examiner could obtain practice administering the WISC-IV, though in actual practice, children may be referred for different reasons. For example, when their academic performance is below grade level, they are acting out in class, they have sustained a brain injury or they need a reevaluation etc. (Dumont and Rapport, 2008).

Background information: This section was included in the report for educative purpose although it does not need to be included in

a WISC-IV practice. This section of the report contains information about the child's developmental, educational, and family history as could be done in actual practice (Dumont and Rapport, 2008).

Behavioral observations: This section describes the child's behavior during the examination (e.g., level of cooperation, attention, frustration), including his or her relationship with the examiner (Dumont and Rapport, 2008).

Assessment results and clinical impressions: This section describes the child's performance on the WISC-IV. Normative data and confidence bands with the full Scale IQ are included (Dumont and Rapport, 2008). This section discusses discrepancies and/or consistency among the child's indexes. The paper also gives the differences between the indexes and individual subtest scores needed to reach the 0.5 and 0.01 levels of significance. This section also describes the child's strengths and weaknesses based on the subtest scores. The percentile ranks for the entire subtest scaled scores are also indicated. The child's perceptual reasoning abilities also described as average or above average, as noted by his score on the Block Design, Picture Concepts and Matrix Reasoning subtests. Working memory (or auditory short-term memory) is indicated as above/below average or average, as noted by his score on the Digit Span and Letter-Number Sequencing subtests. Her sequential visual processing abilities are described, as noted by her scores on the Coding and Symbol Search subtests.

Recommendation: This section is optional. The author included this portion for educational purposes although it does not need to be included in a WISC-IV practice report.

Summary: This section summarizes the findings and any recommendations made in the body of the report.

### 3. RESULTS AND DISCUSSIONS

#### Case: Psychological Report

Client: LAS. Sex: Female

Date of birth: xx/xx/98

Age: 15 yrs 4 months

School: MC High School.

TestingDate: 04/07/2013

Examiner: Anthony Nkyi

Preliminary Information: Sources of information used to gather data for this

evaluation report include a clinical interview with the client and her mother, and the Wechsler Intelligence Scale for Children-Fourth Edition (WISC-IV).

The WISC-IV is a standardized intelligence test provides essential information and critical clinical insights into a child's cognitive functioning. It also integrates current conceptualization and recent research to provide the most essential information about a child's strengths and weaknesses. The WISC-IV contains 10 core subtests and 5 additional subtests. These are summed to four Indexes (the Verbal Comprehension Index, the Perceptual Reasoning Index, the Working Memory Index and the Processing Speed Index) and one Full Scale IQ (FSIQ) which ranges from lowest 40 to highest 160 points

Two sessions with the client were necessary that include the clinical interview and administration of the WISC-IV lasted three hours and thirty minutes and took place at the client's residence. The parents of LAS gave consent to participate in the evaluation process. The father signed a consent form and the child assented to indicate in what manner the information would be used.

Reason for Referral: Client is a volunteer for the purpose of assisting the examiner obtain practice administering the WISC-IV and to provide assessment for educative purposes.

Test Administered: Wechsler Intelligence Scale for Children-Fourth Edition (WISC-IV). (Fig 1, Table A-1)

Verbal comprehension composite  
 Scaled Score

Similarities	16
Vocabulary	13
Comprehension	19

Perceptual reasoning composite  
 Scaled Score

Block Design	7
Picture Concepts	11
Matrix Reasoning	12

Working memory composite  
 Scaled Score

Digit Span	13
Letter-Number Sequencing	14

Processing speed

Scaled Score	
Coding	14

Symbol Search 14  
 Composite scores (Fig 2. Table A- 2)

Standard Score	Percentile Rank
VC I 136	99%
PRI 100	50%
WMI 120	91%
PSI 123	94%
FSIQ 125	95%

Background Information: LAS. is a 15 year African American female high school student who lives with her parent in the state of Nebraska. She is a monolingual English speaker.

The client has an unremarkable medical and mental health history. The client's mother reports that LAS has never had significant medical problems or accidents, and had never been seen by a mental health professional.

LAS was born in the state of Nebraska, the oldest and the only female of four siblings in 1993. Although she was born in the state of Nebraska, her parents had already had originally moved from one of the West African French countries to the United States of America. The parents report that LAS grew up healthy and had no problems during her developmental growth. Her mother holds a Master's degree in Management Studies while the father has a Bachelor's degree.

The mother and the father are employed in a Bank and a business Company respectively.

LAS has other three siblings. Nick a seventh grade, Joe a second grade and Joe in a Kindergarten, all attend a Mission School.

The mother reports that LAS was a healthy full term baby with no problems at birth. She started talking at an early age and started kindergarten a few weeks before she turned five years. LAS attended kindergarten through her eight grades at elementary school in the state of Nebraska. The client excelled in all her classes throughout her elementary education. As a result of her academic excellence, she was awarded the Honorary Rotary Club award and The Black Catholic Student Scholarships for high school education.

LAS attends MC high school in Nebraska and has good academic record and won the state champion in Speech in Serious prose in 2009. She is on several committees at school. She is an active Catholic Church member and plays leadership roles in her church youth group. She was selected to be part of Youth Leadership program at the Creighton University and had the opportunity

to visit several business and social locations in Nebraska throughout the 2008-2009.

LAS is a very sociable and likes to spend time with her friends. The client expressed an interest in hobbies that include reading and socializes with friends.

The client would like to do many things when she grows up. She wants to be a pediatrician, bio-engineer, a teacher and a dancer.

#### Behavioral Observations:

LAS was compliant with the instructions of the WISC-IV administration. At first, she seemed comfortable with the examiner but showed some signs of anxiety as some of the questions appeared harder and difficult. She often asked "Are we still on the difficult stuff" when the questions appear difficult. She worked calmly and quietly and answered most of the questions with much interest. There were two brief interruptions in the administration of the test. One was a visit to the rest room and the other was to the kitchen to drink some water.

#### Presentation and Mental Status:

During the session LAS was alert, and oriented to time, place, and person. She presented no unusual behaviors during the sessions. Rapport with the client was easily established and maintained. Her mood was within normal limits. She was dressed appropriately in a short pant and T-shirt. Client appeared well groomed and exhibited no problems with gait. LAS exhibited good use of the English language and understood instructions of varying complexity. She was very verbal and her responses to questions were direct and appropriate with no evidence of any speech or hearing difficulties. Her attention to the task at hand and her concentration were appropriate although she showed some signs of anxiety with some difficult questions.

#### WISC-IV interpretation Results:

The purpose of the administration of the Wechsler Intelligence Scale for children-fourth Edition (WISC-IV) to the volunteered client was to assess her overall level of cognitive functioning and to assist the examiner obtain practice administering the WISC-IV

LAS overall intellectual ability is in the superior range. Her Verbal Comprehension ability is in the very superior range; her Working Memory and Processing Speed abilities are in the superior range while Perceptual reasoning is in the average range. The Full Scale IQ (FSIQ) is derived from the combination of the ten subtest scores and is considered the most representative estimate of global intellectual functioning (Ref. Table A-2).

There were significant differences among the four indexes that are associated with relatively low scores on the Perceptual reasoning-Block Design. In spite of the differences, the present measure of her overall thinking, reasoning, and intellectual functioning appear to be valid

LAS's performance on the Verbal Comprehension Index suggests that she performs within the very superior range and above those of 99% of her age group. (VCI=136; 95% confidence interval=127-141). The Verbal Comprehension Index is designed to measure verbal reasoning and verbal acquired knowledge. This may suggest her ability to apply verbal skills and information to the solution of new problems, process verbal information and ability to think with words are better developed. The scores may also suggest that her Verbal Comprehension skills are better developed than her perceptual reasoning skills and that retrieval of verbal information from long term memory is better developed than nonverbal problem solving.

LAS's performance on the Perceptual reasoning skills indicate that she is in the average range and above those of approximately 50% of her age group. The perceptual reasoning composite measures nonverbal reasoning skills. Her low score on Block Design may suggest she has poor visual-perceptual reasoning and non-verbal reasoning ability.

LAS's working memory abilities as measured by the Working Memory Index are in the superior range and above 91% of her age group. Such high score may suggest that she has the ability to sustain attention and has a high long term and short term auditory memory and attention.

LAS scored in the superior range on the Processing Speed Composite. Her score is equal or above 95% of people in her age. Processing Speed Index measures processing speed skills. Such superior score suggests that LAS has good processing speed and good attention and concentration. Her strength in processing speed indicates that she has the ability to work under time pressure. The significant difference between the Verbal Comprehension and Perceptual reasoning skills may indicate that her Verbal comprehension skills are better developed than perceptual reasoning skills. The results of the score also suggest that the Verbal comprehension and verbal processing are better developed than her working memory and short term auditory memory. The difference between the verbal comprehension and processing speed skills may suggest that

the verbal processing and long term memory is better developed than short term visual memory (Table A-3).

LAS.'s scores also reflect a number of strengths. For example, one area of strength suggested by the scores was her social judgment and practical reasoning; analogical visual perceptual reasoning, and her ability to reason deductively and the ability to categorize the meaning of individual words. Her high score on Picture completion compared to Block design may suggest that nonspatial perceptual ability is better developed than spatial visualization ability (Table A-4).

Her weakness on block design may not be related to her academic performance but could be likened to her anxiety at the beginning of the test. This is because her overall superior skills (Full Scale IQ=125) indicate that LAS has the ability to perform well at school and at home. Her involvement in church activities as her leadership roles in youth group confirms the elevated score (Ref: Table A-4).

#### 4. CONCLUSIONS

##### Summary:

LAS is a 15 year African American female high school student who lives with her parent in Omaha, Nebraska. Both of her parents migrated from Togo to America. She is a monolingual English speaker.

LAS was born in October 5, 1998 in Nebraska, the oldest and the only female of four siblings.

LAS has other three siblings. The client has an unremarkable medical and mental health history.

She agreed to participate in this psychological test to assist the examiner for educational purposes. Her scores on the WISC-IV are believed to be valid indication of her present level of intellectual functioning.

She obtained a WISC-IV Full Scale IQ of 125 in the superior range equal or above 95% of her peers. LAS overall intellectual ability is in the superior range. Her Verbal Comprehension ability is in the very superior range; her Working Memory and Processing Speed abilities are in the superior range while Perceptual reasoning is in the average range

##### Recommendation:

On the basis of the present evaluation, LAS should be seen as functioning at a superior range. This is not surprise looking at her academic record, her verbal and reasoning

abilities.

The following specific recommendations may be considered:

1. LAS is encouraged to focus on activities that involve recognition of visual details. This will enable her to gain skills to analyze and synthesize visual-spatial material and visual-motor coordination.

2. LAS will benefit from relaxation techniques to enable her reduce anxiety that can contribute to the ability to work under time pressure and the willingness to guess when uncertain.

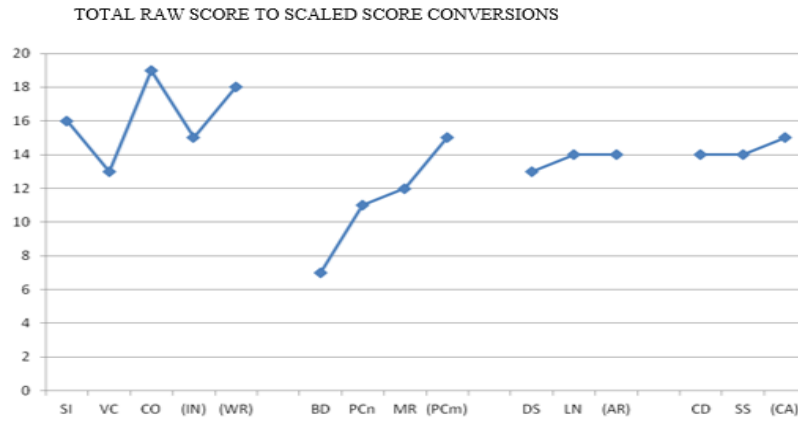
3. LAS will need program on motivations to build her self-esteem during frustrations and anxiety. Much emphasis should include building on her strengths.

4. Her learning style appears to be a verbal/auditory learner as she performs best on these type tasks.

The WISC-IV assessment offers stakeholders the opportunity to: (a) identify reading and learning issues early as well as learning disabilities in children; (b) Understand the individual's learning profile and identify gifted children; (c) make appropriate accommodations and develop learning plans for individual students; and (d) to determine learning processes, which include both strengths and weaknesses and the impact that they might have on individual student performance (Wechsler, 2003a).

## APPENDICES

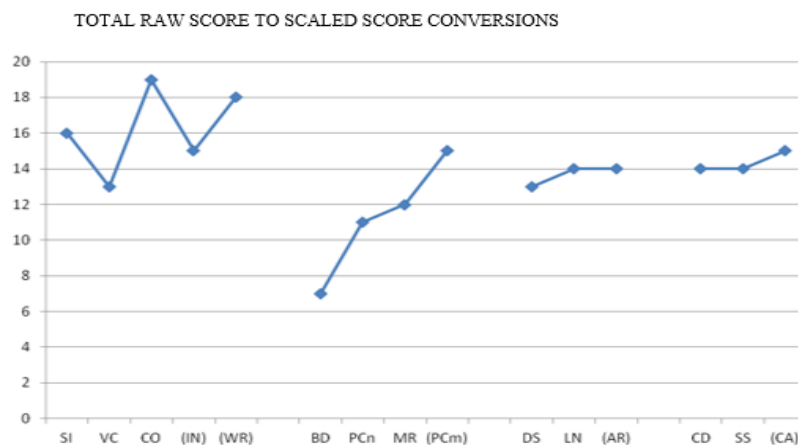
**Fig. 1.** Total raw score to scaled score conversions



**Table A-1.**

Subtest	Raw score		Scaled Scores				
Block Design	38	7	7				7
Similarities	39	16	16				16
Digit Span	22	13		13			13
Picture Concepts	21	11		11			11
Coding	86	14			14		14
Vocabulary	56	13	13				13
Letter-Number Seq.	23	14			14		14
Matrix Reasoning	28	12		12			12
Comprehension	42	19	19				19
Symbol Search	42	14			14		14
(Picture completion)	36	15					(15)
(Cancellation)	125	15		(15)		(15)	(15)
(Information)	30	15	(15)				(15)
(Arithmetic)	31	14			(14)		(14)
(Word reasoning)	24	18	(18)				(18)
<b>Sums of Scaled Scores</b>			<b>48</b>	<b>30</b>	<b>27</b>	<b>28</b>	
			<b>Verbal Comp.</b>	<b>Perc. Rsg.</b>	<b>Work. Mem.</b>	<b>Proc. Speed</b>	<b>Full Scale</b>

**Fig. 2.** Total raw score to scaled score conversions



**Table A - 2.** Sum of scaled scores to composite score conversion

SCALE	SUM OF SCALED SCORES	COMPOSITE SCORE	PERCENTILE RANK	95% CONFIDENCE INTERVAL
Verbal comprehension	48	VCI 136	99	127-141
Perceptual Reasoning	30	PRI 100	50	92-108
Working memory	27	WMI 120	91	111-126
Processing speed	28	PSI 123	94	111-129
Full scale	133	FSIQ 125	95	119-129

**Table A-3.** Discrepancy comparison

Index/Subtest	Scaled Score 1	Scaled Score 2	Difference	Critical Value	Significant Difference (Y) or (N)	Base Rate
VCI - PRI	VCI 136	PRI 100	36	10.59	Y	0.5
VCI - WMI	VCI 136	WMI 120	16	10.59	Y	20.5
VCI - PSI	VCI 136	PSI 123	13	11.38	Y	31.7
PRI - WMI	PRI 100	WMI 120	-20	11.75		9.8
PRI - PSI	PRI 100	PSI 123	-23	12.46		3.4
WMI - PSI	WMI 120	PSI 123	-3	12.46		43.9
Digit Span - Letter-Number Seq.	DS 13	LN 14	-1	2.08		47.1
Coding - Symbol Search	CD 14	SS 14	0	2.61		
Similarities - Picture Concepts	SI 16	PCn 11	5	2.47		7.7

Statistical sig. Level- .05

**Table A-4.** Determining strengths and weaknesses

Subtest	Subtest Scaled Score	Mean Scaled Score	Difference from Mean	Critical Value	Strength or Weakness (S) or (W)	Base Rate
Block Design	7	10	-3	3.01		4.20
Similarities	16	10	6	3.01	S	3.70
Digit Span	13	10	3	2.87		4.80
Picture Concepts	11	10	1	3.39		4.55
Coding	14	10	4	3.17		4.90
Vocabulary	13	10	3	2.70		3.70
Letter-Number Seq.	14	10	4	2.63	S	4.50
Matrix Reasoning	12	10	2	2.68		4.10
Comprehension	19	10	9	3.44	S	4.10
Symbol Search	14	10	4	3.56		4.40

Statistical sig. Level- .05

### Conflict of interests

Author declare no conflict of interest.

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# IMPORTANCE, STRUCTURE AND OUTCOMES OF THE MUSIC PROGRAM IN THE PRIMARY SCHOOL: THE EXPERIENCE OF CROATIA, MONTENEGRO, AND SERBIA

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Received: May, 10.2015.

Accepted: May, 25.2015.

Original Article

UDK 373.31.214(4-12)

371.3::78(4-12)

**Abstract.** In an effort to look into the importance and structure of the program through a simultaneous analysis of the achievement outcomes for the Music course in three countries – Croatia, Montenegro, and Serbia, the authors have performed a detailed analysis of a number of documents covering the topic in these countries. A comparative analysis of the contents of these documents has provided us with the opportunity to assess the speed at which the educational systems in the three countries are being reformed, the differences in the approach to individual areas, but also the need to provide joint theoretical efforts whose goal would be to foster what is the common denominator for us all – a promoted process of teaching music which would provide a simultaneous development of students' artistic identity.

**Keywords:** *Music education, Outcomes, Achievements, Standards, Primary school.*

## 1. INTRODUCTION

Croatia, Montenegro and Serbia have undergone a number of public education system reforms in the last fifteen years. The most recent of these have pertained to fundamental solutions in primary and secondary education, in an attempt to get closer to the standards of contemporary schooling. Unlike in Croatia, which passed a foundational document entitled [The National Curriculum Framework \(2011\)](#), from which all other documents emerge, in Montenegro and Serbia separate documents have been made for all levels of the educational system, yet without a unified document to provide a common framework. The reform of such a far-reaching scope has

included a detailed monitoring and evaluation of the curriculum, which has in turn made the process open for constant amendments and improvements. According to the results of recognized international tests, primarily the Program for International Student Assessment (PISA), and the research conducted by the Bureau for the Evaluation of the Quality of Education, in comparison with Croatia, Serbia is still significantly falling behind. In an attempt to resolve the potential problems as quickly as possible, Serbia has passed a number of legal acts and initiatives defining the desired direction in the educational system reform. The central related document is the National Program for the Integration of the Republic of Serbia into the European Union, which defines new approaches to the assessment of student achievement, including the corresponding standards, but also requires that education should be accommodated to new standards in terms of competences.

The curriculum encompasses all domains of education, one of which is education in art. That way, music and music teaching become part of the curriculum. [The educational goals from the Croatian National Curriculum Framework \(2011\)](#) pertaining to the domain of art are oriented towards: education of students in line with the general values of culture and civilization, promotion of their overall development as human beings in accordance with their personal abilities and affinities, ensuring the grounds for students to acquire fundamental professional competences, preservation of historical and cultural heritage, in its both material and spiritual forms. The Montenegrin system of education does not list general goals for the domain of Art, yet one of the first documents passed in Montenegro already in the beginning of the reform process states that art and its fields

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must be approached in an interdisciplinary manner in the curricula, so that art should not be studied from a single, self-sufficient angle ([Basic Recommendations for the Restructuring of Syllabi and Curricula, 2002](#)). In the Serbian educational system there is no classification into educational fields, which means there are no available documents which define the goals of education in the domain of art.

The teaching of Music in Croatia is characterized by an open model, in which the compulsory part is to listen to music and become familiar with it, while the elective part is selected by the teacher in accordance with students' affinities. Contrary to this, in the Montenegrin and Serbian educational system all parts are equally represented. The programs in the Montenegrin educational system are open, which means there is a possibility that teachers, together with students and the local community, freely conceive of and organize 15% to 20% of the total number of yearly classes. This suggests that the curricula are partly open. Work methods, as well as contents that are listed as proposals in the program, are freely chosen by the teacher, which acknowledges the teacher's competences but also opens the way for his or her more creative and motivated work with students. In Serbia, the program of the course in Music requires from teachers to use various methods, while keeping in mind the musical sensibility and creativity of their students, with the goal to organize the teaching process in the way in which all domains will be equally covered. This is closer to the model used in teaching Music in Montenegro.

In Croatia, Montenegro, and Serbia music is taught through reception and perception, by listening to music and by actively performing music. Likewise, it is stressed that music has not only artistic, but also cultural importance. Teaching music aids in students' affective, psycho-motoric, cognitive, moral, aesthetic, and psychosocial development, where particular emphasis is put on the development of musical abilities, knowledge and skills.

Differences are reflected in the duration of the primary school. The compulsory general primary education in Croatia takes eight years, and it is organized in three cycles. The first cycle consists of the first four grades in the primary school, the second cycle pertains to grades five and six, while the third cycle encompasses grades seven and eight in the primary school. In Serbia, just like in Croatia, primary schooling takes eight years, however it consists of two cycles: the first cycle of

primary education, encompassing grades one to four (classroom teaching) and the second cycle, including grades five to eight (subject teaching). In Montenegro, the primary school takes nine years, and it is divided into three three-year cycles.

## **2. THE FIELD OF ART IN THE STRUCTURE OF THE NATIONAL CURRICULUM FRAMEWORK IN THE REPUBLIC OF CROATIA**

Educational areas are made up of several courses grouped together into a single thematic whole. These are: the language and communication area, mathematics area, science area, technical and informatics area, social sciences and humanities area, art area, and physical and health area. In the National Curriculum Framework, each area is separately described, where the goals of the area and expected student achievements are defined. As mentioned, music has been given a separate place within the area of art. In addition to Musical Art, the area of art also includes: Visual Arts and Design, Film and Media Culture and Art, Dramatic Culture and Art, and Art of Movement and Dance.

The segment of the curriculum dedicated to the area of art begins with a general description. According to the [National Curriculum Framework \(2011, 208\)](#), the purpose of the art area is to "improve students' understanding of art and their active response to art by participation, for understanding various forms of art and also themselves and the world through works of art and the media, and also for expressing their feelings, experiences, ideas and attitudes through art activities and creative work."

The educational goals of the area ([NCF, 2011](#)) are listed in fifteen points. They define what students shall adopt, develop, become familiar with, notice, etc. After these goals, expected student achievement is listed, by the education cycle. General student achievement is first given, followed by separate achievement goals by the area. The general part is entitled "*Active Observation and Understanding of the World of Art and Participation in Art Education and Artistic Creation*". In each cycle, this part is further classified into four wholes ([NCF, 2011, 212-213](#)):

1. *Observing and experiencing artistic creation and activities and their aesthetic values (perception and reception);*

2. *Participation in artistic creation and activities (creation or production and performance or reproduction);*

3. *Communication, socialization and collaboration through art, design and the media;*

4. *Understanding and appreciating artistic creation and activities.*

Student achievement in the area of Music is classified into five wholes. These wholes mostly represent the adjusted wholes from the general section, with an additional one which does not occur in any form in previous text (number 2). The following wholes are listed (*Ibid.*, 212-213):

1. *Observing, experiencing and accepting musical art and musical creation (perception and reception);*

2. *Acquiring the knowledge of the elements of musical art and creation;*

3. *Participation in musical activities and self-expression through musical art and creation;*

4. *Communication, socialization and collaboration through musical experience and expression;*

5. *Understanding and appreciating musical art and creation.*

## **2.1. The area of music in the first, second, and third primary school cycle in Croatia**

The subject of interest has comprised the first three cycles, which are analogous to the eight-year primary education, grade one through eight. We present our structural analysis through the educational achievement of individual cycles, viewed against the five wholes. We have compared the educational achievements in the three cycles and analyzed if they change and, if yes, to what extent. The first cycle represented our starting point. We have provided the complete list of outcomes of the first cycle (*Ibid.*, 212-213).

### ***Observing, Experiencing and Accepting Musical Art and Musical Creation (perception and reception)***

In the first cycle (grades one through four in the primary school), this whole contains five outcomes.

1. *Observe, notice and appreciate artistic beauty and value in their natural surroundings and in musical work, and gradually*

*expand the scope of their perception and experience;*

2. *Express their feelings, experiences and attitudes in a syncretic and comprehensive manner by using diverse art forms and creative processes;*

3. *Practice concentration and memory while listening to music;*

4. *Describe one's own experience of the musical work;*

5. *Acquire the basic prerequisites and criteria for developing a positive attitude to musical art.*

In the second cycle (primary school grades 5 and 6), the first whole includes four outcomes. Two of them have been slightly expanded as compared with the first cycle, one has been reduced, and two have been left out. The new outcome in the second cycle reads: *Listen to works of art, explore and compare various themes and motifs in art music.* This outcome is also found in the third cycle, however in an abridged form: *Explore ideas and concepts of musical art.*

In the third cycle, only three outcomes have been taken over and rephrased from the previous cycles. The new outcomes appearing in the third cycle (grades seven and eight) are: *Describe and assess multiple roles of music and its influence on everyday life of the individual and in the community at large. Demonstrate self-respect and self-confidence and express the authenticity of experience.*

The analysis of the first whole leads us to the conclusion that the outcomes are fully aligned with the title and content of the whole. However, inconsequence and lack of clear connections between individual outcomes is quite visible. If we view the three educational cycles as an interrelated structure in which the cycles are built over one another, they should be structurally developmental and progressive.

### ***Acquiring the Knowledge of the Elements of Musical Art and Creation***

In the first cycle, this whole contains five outcomes, where students shall:

1. *Differentiate between basic elements of musical expression (loud-soft, fast-slow, low-high, vocal-instrumental);*

2. *Recognize repeating and contrasting themes in music;*

3. *Recognize and reproduce simple metrical and rhythmic patterns;*

4. *Familiarize themselves with the musical language and script by singing and playing*

music;

5. *Become familiar with musical instruments in terms of their timbre and appearance.*

In the second cycle, four outcomes have been reformulated, and one has been left out. Two new ones have been added: *Recognize and name various types of music (traditional, popular, classical) and Develop intonational abilities by singing.* In the third cycle, slightly altered formulations are found of just one outcome from the first cycle and one outcome from the second. Three outcomes are new: *Conceive and express new ideas in musical art by using individual achievements; Develop interpretive competences by playing music actively; Compare, differentiate, and identify the same or different stylistic periods, their prominent representatives and the most significant works and express their experience of these works.*

We think it illogical that some of the more concrete outcomes given in the first and second cycles have not been listed in the third cycle, as well, since they are needed in this cycle, too, of course with expanded requirements. Namely, the first outcome in the first cycle, pertaining to the differentiation between the basic elements of the musical expression, would need to be reformulated and included in the third cycle. In the third cycle, i.e. in grades seven and eight, in line with the requirements from the curriculum, students should become familiar with new musical genres, forms and instruments. In that context, one should change the level and requirements of the outcomes viewed against the students' age and abilities, such as, for instance, the recognition of and differentiation between various specific elements in vocal, instrumental, or vocal-instrumental music (e.g. instrumental homophony – polyphony, choir homophony - polyphony, aria-recitative, etc.). The second outcome, related to the recognition of musical wholes that repeat or contrast one another, is the main means by which works of art music are to be familiarized with, and should therefore not be left out. Rather, the level of this recognition should be elevated to that of differentiation, comparison, description, or even creation.

### ***Participation in Musical Activities and Self-Expression through Musical Art and Creation***

In the first cycle, this whole contains six outcomes, where students shall:

1. *Express themselves creatively*

*(vocally, aurally, motorically, visually, and digitally);*

2. *Express their ideas, feelings, and experiences through musical activity;*

3. *Perform simple musical tasks, individually or in a group;*

4. *Become familiar with the basics of musical literacy;*

5. *Show the pleasure and express the joy of participating in musical activities and creation;*

6. *Increase self-esteem and practice self-control through musical activities.*

In the second cycle, a few of these outcomes repeat in a slightly different form. New expected outcomes here are: *Apply the knowledge about the elements of musical art by integrating technical and practical skills; Recognize, compare and try out various techniques and procedures when studying musical pieces or while composing and performing them.* The outcomes are not presented in a clear way. Thus, the beginning of the first outcome would make sense as a separate outcome – apply the knowledge about the elements of musical art – however, it remains unclear what is meant by the integration of technical and practical skills: musical performance in the form of singing or playing? Does it perhaps refer to the singing or playing technique in the integration of technical and practical skills? Can we talk about any technical skill without practical application? The second outcome is more clearly defined, yet it contains superfluous elements and is not concrete. We think the following part is superfluous *when studying musical pieces* because this entire whole is dedicated to participation in musical activities and expression through music. Therefore, every outcome should provide a step in this direction, so that in this part only *while composing and performing them* could be sufficient.

In the third cycle, some outcomes repeat from the first cycle, some from the second one, while some have been reformulated. There are no new outcomes, but the outcomes from the second cycle appear again. The first outcome has been defined with a single minimal change – *technical skills* have been left out, and *knowledge* has been added instead. The second outcome has been slightly rephrased. The word *compare* has been replaced by *use*, while *procedures* have been replaced by *methods*.

### **Communication, Socialization and Collaboration through Musical Experience and Expression**

In the first cycle, this whole contains three outcomes.

1. *Work together with others, especially students with special needs and developmental disabilities;*

2. *Learn how to share responsibility and practice perseverance in musical activities;*

3. *Practice loyalty, unity, joint life and tolerance through musical activities.*

The three outcomes that we have mentioned are defined from a point of view external to music. Yet this entire whole is conceived in such a way, and therefore the decision is justified.

In the second cycle, only two outcomes from the first cycle are reiterated. Yet, four new outcomes are given: *Recognize various roles of music and assess their importance and impact (sic!) in everyday life and in the life of the community at large; Express and develop a specific idea by means of multimedia and ICT; Communicate and share artistic impression and experience with others; Become familiar and learn to respect our own tradition and culture, explore it and compare it with the traditions and cultures of other nations.* The first two outcomes listed above are clear in their intention and belong to the scope of the topic of the entire whole. The first outcome pertains to the recognition of the value of music in students' life. The second one has the purpose of helping students express themselves, among other ways, by using modern technologies. The third outcome is very simple, but also necessary in this whole especially since artistic reception and communication has already been given enough room in the first whole. Even though the entire area deals with music, the fourth outcome should still specify that the statement pertains to *musical* tradition and culture.

As stated above, in the third cycle, the first outcome has been reformulated. The third cycle thus repeats the outcome from the first one, yet with a slight addition that has not been inserted into the second cycle. In terms of the new outcomes from the second cycle, in the third cycle only the third outcome, which we have mentioned above, repeats, yet in an extended form, where the following is added: *and explore the connection between the creation (production) of musical works and their impact on the world we live in.* There are also two new outcomes in the third cycle: *Explore*

*the diversity of musical expression from historical, geographical, and economic perspectives using the knowledge and skills acquired in other educational areas; Through participation in the creative process of experiencing musical works and in performing and creating musical works, understand the role of perseverance in success, both in musical art and in other arts and other fields of human activity.*

In the first outcome, it is partly clear what it means by musical expression from historical and geographical perspectives, yet how can this be viewed from an economic perspective? The second outcome is nonmusical. However, we may take into account the fact that the discussion here has been taken over from the overall achievements of education and, as such, it may not have been worded differently.

### **Understanding and Appreciating Musical Art and Creation**

In the first cycle, this whole contains four outcomes, where students shall:

1. *Describe their experience of musical works and compare it to that of other students;*

2. *Recognize and appreciate artistically beautiful and valuable musical expression;*

3. *Exercise self-criticism with respect to their own musical creation, in making and performing music alike;*

4. *Hone assertiveness and constructive criticism in evaluating their own work and that of others.*

In some form, outcomes from the first cycle appear in the second cycle, as well. However, in the second cycle one more outcome is found: *Improve their own musical expression and respect the specificities of the individual development of others.* In the third cycle, this outcome repeats in the same form, while the third outcome has been left out.

## **3. ANALYSIS OF PROGRAM OUTCOMES FOR THE COURSE MUSIC IN PRIMARY SCHOOLS IN MONTENEGRO**

The course in *Music* belongs to the area of Art, which is one of seven fundamental areas of knowledge, grouped by related courses (languages – native and foreign, mathematics, science, technology, social science and humanities, physical and health culture, art). When this program was being made in the process of educational reform, the tendency

was not to classify fundamental knowledge into separate disciplines, but rather to present them in curricula and program as interrelated parts of a whole ([Basic Recommendations for the Restructuring of Program and Curricula, 2002, 25](#)). Interconnected horizontally and vertically, the program in the domain of art should develop a fine distinction among the specific fields of art as a combination of knowledge and skills, which should not be studied in a narrow, discipline-specific manner, but should rather be viewed in an interdisciplinary fashion, as well ([Ibid., 35](#)). To ensure closer links, it is allowed that specific courses be interlinked with other courses, in either art or other disciplines.

The importance of music teaching in primary education is also stressed in the overall goals of the program. The authors accentuate that students should build a positive attitude to music, develop their interest in music, and also desire and capacity to take part in various forms of musical activities. It is added that through this course extramusical abilities could develop as well, such as communicativity and desire to participate in team work. Participation in creating music should develop creativity, motivation, diligence, and self-esteem. One of the goals is also to develop a habit in students to actively listen to music, experience it and slowly become able to recognize its basic characteristics. Musical creativity aligned with students' individual capacities and age looks like a provisory defined goal, since the artistic value of what students create in class as a product of improvisation and creative games is questionable (i.e. thinking up a melody based on a given text, completing a melody, conceiving of rhythmic accompaniment, etc.). Delimitation of fundamental musical concepts, development of the general musical capacity, and encouragement for discovering pieces from the musical literature may be stressed as the most important overall goals of teaching music in the primary school. Among the extramusical general goals, one can single out raising awareness of the most valuable achievements which determine the cultural identity of certain nations and communities, and raising awareness of the achievements defining the cultural identity of Montenegro.

In the general remarks, music is described as a constant human need, so that, as a course in schools, it plays an important role in fostering creativity, artistic abilities, skills, and knowledge. It opens for students "a new world of higher cultural needs, makes them

aware of higher artistic values, and develops their critical thinking and aesthetic sensibility" ([Course program – Music, 2013, 4](#)).

### **3.1. Developmental achievements and knowledge standards – program outcomes by cycle**

Nine years of primary education in Montenegro are classified into three equal cycles. In course programs, knowledge standards, i.e. outcomes, are given. Contrary to Croatia, where the outcomes are classified into categories (wholes), in the Montenegrin program they are defined as a sublimation of developmental achievements. These developmental achievements are systematized in three areas: *abilities, skills, and knowledge based on information*.

#### ***The First Cycle***

Along with preschool, the first three years of primary education are aimed at fostering elementary musical capacities, whose proper and gradual development should support the development of musical thinking in later grades. Skills pertain to the development of singing, speaking and instrumental motorics, and to the expression of sound features by movement, through didactic games ([Ibid., 19](#)). In the first cycle, the knowledge encompasses elementary musical concepts and orientation in the pictorial representations of the melody.

Knowledge standards or program outcomes for the first cycle:

- *Individually or in the group, students can sing 8 folk and art songs in accordance with their individual capabilities and with various types of performance (monophonic, with or without instrumental accompaniment);*
- *They know 5 counting rhymes with musical accompaniment (using the body or Orff's instruments as the sound source);*
- *They can perform 3 musical games (didactic games, games with singing, games with instrumental accompaniment, small musical dramatizations);*
- *They can recognize 9 musical pieces they have heard;*
- *They differentiate between tones, sounds, and silence;*
- *They can recognize and name instruments by timbre (children's, folk, classical);*
- *They can recognize the timbre of voices*

(child, female, male);

- They can recognize who is performing the piece: a voice, an instrument, a soloist, a group (chamber music) or a collective (choir, orchestra);

- They distinguish between the concepts: loud – soft, fast – slow

- They can name and understand the concepts: choir – choir master; musical piece – composer; conductor; counting rhyme; musical fairy-tale; musical events.

- They can perform one short piece on a folk instrument and they can perform the rhythmical accompaniment for 2 songs on Orff's instruments.

At the end of the first cycle, the outcomes are based on musical perception and reception. Differentiating between timbres at this age develops concentration and aural perception abilities. Performing folk and art songs starts from the trichord in grade one (re, mi, fa) to pentachord in class three. The gradual extension of pitch range has the goal to result in as intonationally clean singing as possible. However, songs with a narrow pitch range often turn out to be insufficiently interesting, where one tone may repeat many times, which makes it difficult to preserve intonation, especially in the primary school, where musical abilities of individuals are uneven. Finding one's way in pictorial representations of a melody and understanding symbols represent procedures in the teaching methodology in which students make connections between the aural and the visual, perceiving melodic movement and durations of notes presented through the varying lengths of symbols. This is at the same time a preparation for elementary musical literacy in grade four. This methodology has been taken over from Slovenian textbooks. In the reform process, intensive cooperation was established with Slovene experts. The *Slovenian Model* was also important for introducing the nine-year primary school in Montenegro.

Since students acquire songs by ear, one can ask whether first-cycle teachers should insist on a subsequent analysis of drawings, so that students could understand their meaning, or follow the movement of symbols during the performance of the song they have learned? Performing a melody on a folk instrument (the text does not specify which one) looks like an unrealistic outcome. The knowledge based on information (concepts) that students are supposed to acquire has been realistically set and stems from the experience of listening, performing, and perceiving music. Importance

ascribed to musical games and pronouncing counting rhymes followed by rhythmic accompaniment, also supports the development of motoric and verbal skills.

### **The Second Cycle**

In the second three-year period, the development of *abilities* coincides with the period in which the sense of harmony is also being developed. This is fostered through the use of two-voice singing in the Montenegrin folk song, and also through perpetual canon or ostinato accompaniment. In this period, the ability to understand tonal relations, duration and pitch also grows, which helps further musical development. Students become trained to use basic notation, and their analytical reception of musical contents helps them better perform, listen to, concentrate on and memorize music. Students are slowly instructed into aesthetic forms (*Ibid.*, 34).

Psychomotor *skills* needed for vocal and instrumental performance are further developed, such as movement in reaction to music. With a well-selected program for performance and didactic procedures, performance skills are perfected, and changes accommodated; with boys, voice mutation occurs, and the teacher explains how these students should participate in the process, i.e. sing.

Based on the musical experience which students have previously acquired, the teacher presents the required *knowledge* which provides elementary orientation during performance, listening, or creative activities. In the second three-year period, students use notation, become familiar with concepts from music theory, diversify instrument timbres, understand that musical works have a specific form, learn of various musical types and genres. It is important that the teacher should not prioritize theorizing and verbal expression (*Ibid.*, 35).

At the end of the second cycle, the knowledge standards – program outcomes define that students should:

- Be capable of performing 8 folk and art songs (in the range of one octave);

- Perform songs in a group or individually – in one or two voices;

- Play at least 2 short pieces (or accompaniments) using Orff's instruments;

- Make a difference between vocal, instrumental, and vocal-instrumental music;

- Recognize singing voices (child, female, male), groups and choirs;

- Recognize soloists on various

*instruments;*

- *Recognize timbres of individual instruments and groups of instruments;*
- *Understand basic orientation in a notation (pitches, durations, bar signature);*
- *Differentiate between and understand the meaning of scales, major – minor (solely by the sound);*
- *Know that music is organized in formal constituents and forms having their names;*
- *Recognize certain musical styles and genres;*
- *Recognize a repertoire of 10 musical pieces – by national and international authors;*
- *Know the difference between musical creation and interpretation.*

By analyzing the contents of this program, we notice that learning the songs based on the notation, with the corresponding beat provided by tapping, cannot be viewed as basic orientation in the notation. One of the outcomes reads that major and minor scales should become familiar “solely by the sound”, while the operative goals list that students should understand the following concepts: degree, step, half-step, which implies that a theoretical explanation of the structure of the major and minor scale must be given. In grade four, elementary musical literacy is also acquired through the use of model songs, whose purpose is to introduce the pitches. We hold the opinion that, in the primary school, learning a song based on the notation would make some sense if this procedure were applied only after the song has been acquired by ear, so that students could become conscious of the melodic structure, thus gradually increasing their knowledge of the notation. Possibly, conducting simple meters with one hand should be replaced by tapping the basic counting units. The number of art and folk songs has remained the same as in the previous cycle. Perception of musical works, differentiation between instrument timbres, and recognition of elementary features of musical forms become gradually related to the outcomes of the first cycle.

### ***The Third Cycle***

In the developmental outcomes, the third cycle (grades seven, eight, and nine) is defined as a period in which musical abilities encompass the “recognition of regular relations among the musical pitches, durations, or harmonies. In the third cycle, teachers should bring student musicality to a higher level so

that students can express themselves vocally, instrumentally, and vocally-instrumentally. The third cycle coincides with the period and characteristics of the child’s maturation, and in this period the child develops his or her musical memory, critical attitude, and aesthetic sensibility” (Ibid., 51). Developing skills means that, in line with the development of the psychomotor system, the accent is put on the improvement of vocal and instrumental performance (singing polyphonic songs and playing Orff’s melodic instruments – xylophone, metalophone, block flute, etc.), or on the simultaneous singing and playing of an instrument. The third cycle envisages that the activities and experience be systematized based on the data on the resources of musical performance, musical forms, contents, types and genres of music. A historical overview of the development of art music is given through various stylistic periods studied during all three years. In the end of this cycle, the student is to have attained the following knowledge, as stressed in the statements below:

- *Students gain direct musical experience through vocal, instrumental, and vocal-instrumental performance of musical works;*
- *They are given systematized data which serve as principal orientation in their musical activity;*
- *They become familiar with the historical importance of musical achievements and developments;*
- *They are familiar with the creation of musical values important for music in Montenegro.*

At the end of the third cycle, knowledge standards / program outcomes define that students should:

- *Be able to perform 8 folk and art songs which have the form of an aesthetic expression;*
- *Be able to perform 2 shorter instrumental pieces (from art and popular music);*
- *Be able to name historical stylistic periods related to music (from the beginnings to the present day);*
- *Know about the musical culture of Montenegro;*
- *Recognize 10 to 15 pieces of national and international composers, as well as contemporary performers;*
- *Know various types and genres of music.*

In the outcomes so defined, one can clearly see that musicological contents have

been stressed, where the main developmental achievement is students' ability to perceive the music of different historical periods. Reception of a musical piece and increased knowledge of music based on analytical listening should be gradually developed in all three grades. In this period, it is important to ensure correlation with other courses since art music should now be viewed in the context of broader currents in culture and society (the fine arts, literature, history). The outcome according to which students should be able to perform two shorter instrumental pieces from art or popular music is not clear. More realistically, it could be expected that students could use an instrument from the Orff Schulwerk so as to perform a theme from a particular instrumental piece. The outcome stating that students should "know various types and genres of music" should be aimed at the reception of musical works (perception, recognition).

#### 4. SERBIA – STUDENT ACHIEVEMENT STANDARDS FOR THE COURSE MUSIC

In the last couple of years, several EU-backed initiatives have been given to promote the system of education in Serbia. In addition to the [Act on the Foundations of the System of Education of 2009](#), [Education Development Strategy in Serbia by 2020](#), [Educational Standards for Completing Compulsory Education of 2009](#), a Regulation Book on General Achievement Standards – Educational Standards for Completing Compulsory Education has also been adopted. All these documents pertain to the reform of the educational system and promotion of its quality. In addition to the establishment of the quality control system, monitoring, and evaluation, the [Act on the Foundations of the System of Education \(2009\)](#) also defines and manages the *Educational Standards*. The definition and organization of these standards aims at empowering the teachers to implement the teaching process, but also at harmonizing the requirements related to the competences of students. *Serbian Education Standards* for completing compulsory education have been formulated within the framework defined by the current curricula and programs, where they start from the goals of education defined as binding requirements. In turn, these requirements represent the knowledge and skills at the end of a given education cycle.

Unfortunately, national standards and achievements for the first cycle of primary education (grades one to four) for the course in Music have not yet been made and adopted, so one cannot fully compare these with the Croatian and Montenegrin standards in the first cycle. Instead, in Serbia, these cycles have been defined only for the end of compulsory schooling (the final four grades of primary, general education).

By gaining an insight into the document *Educational Standards for Completing Compulsory Education for the Course in Music*, we have an opportunity to appreciate its conception and structure, and, for the purposes of this paper, analyze this document, and in such a way compare achievement standards in Serbia with those in Croatia and Montenegro.

In primary schools of general education in Serbia, music teaching has the goal of enabling the student to become acquainted with all vital dimensions of music through personal experience, where the student should be given the prerequisites to fully appreciate and experience the musical piece and participate in a musical event in the way and to the degree which he or she will choose him or herself in the future ([Ministry of Education, Council for Evaluating the Quality of Education, 2010](#)). What separates teaching music from other courses in the general curriculum is that music is experienced directly during the teaching process. The Serbian document claims that, for a student to master the cognitive and aesthetic aspects of the musical experience, the program should cover four interrelated areas, without which proper familiarization with music is not possible. The knowledge of music (e.g. that of musical elements, instruments, genres, folklore) has no purpose unless the student can relate this knowledge to sound or a musical example, and thus understand what he or she is listening to. This is why four areas – knowledge and understanding, music listening, musical performance, and musical creativity – have been articulated through the guidelines defining program requirements, from the lowest, over medium, to the highest forms of student achievement (elementary, intermediate, and advanced levels). In the standards, levels of achievement have been defined in the following way:

– The elementary level implies elementary knowledge of a problem, mastery of basic conceptions and skills.

– The intermediate level implies critical thinking within the existing knowledge and logical sequencing of elements within a

particular context.

– The advanced level implies the ability for critical thinking followed by devising creative solutions related to the problem and argumentative justification of one's own judgment.

Most students (between 80% and 85%) are expected to attain the achievement from the elementary level. In the context of music education, this would mean that they should have elementary knowledge of music. Advanced achievement pertains to a higher quality of knowledge and it is expected that considerably fewer students (between 20% and 25%) will attain it. Intermediate level achievement will be typical of students with average music education (about 50% of students), who will have a potential to develop their knowledge towards the advanced level (Ibid., 7).

Standards based on levels of achievement for all four areas are defined in the following way:

*In the area "Knowledge and Understanding",*

*At the elementary level, the student is able to:*

– Recognize the basic elements of musical literacy;  
– Describe the basic characteristics of: musical instruments and ensembles; historical – stylistic periods: musical genres and folk musical tradition.

*At the intermediate level, the student can analyze the connection between:*

– Musical elements and characteristics of musical instruments with musical expression (i.e. a fast tempo with a lively character);  
– The structure and dramatic composition of a musical genre (for instance, an opera finale with events in the drama);  
– The form of folk music with the specific context of folk life.

*At the advanced level, the student:*

– Knows the functions of elements of musical literacy and of ensembles in given musical works;  
– Understands the historical and social circumstances behind the emergence of a genre or forms of musical folklore;  
– Justifies his or her judgment in a critical and argumentative way;  
– Can creatively combine elements of expression in an aesthetic context (making a connection between a particular musical procedure and a desired effect).

*In the area "Music Listening":*

*At the elementary level, the student is able to listen to musical examples in such a*

*way so as to name:*

– The elements of musical expression;  
– The musical ensemble;  
– Musical genres;  
– Serbian musical folklore.

*At the intermediate level, the student is able to:*

– Describe and analyze the features of a sound example through the interplay of perceived musical elements (i.e. a choppy tune as a result of a specific rhythm, tempo, agogics, dynamics, intervallic structure);  
– Recognize the structure of a particular genre.

*At the advanced level, the student is able to analyze the heard example and discover the connection between its perceived features and:*

– The structural and dramatic dimension of the musical example;  
– Its historical context (in terms of genre and style);  
– The context of the origins and use of various forms of musical folklore.

*In the area "Music Performance",*

*At the elementary level, the student is able to:*

– Sing simple children's, folk or popular musical pieces;  
– Perform simple children's, folk or popular pieces on at least one instrument.

*At the advanced level, the student is able to:*

– Perform pieces from a diversified musical repertoire by singing or playing as a soloist in school ensembles.

*In the area "Musical Creativity",*

*At the elementary level, the student is able to:*

– Make musical instruments using objects from the world around him or her;  
– Conceive of smaller musical wholes based on pre-given models;  
– Perform rhythmic or rhythmic-melodic accompaniment on constructed musical instruments;  
– Participate in the selection of music for the given genre and historical context.

*At the advanced level, the student is able to:*

– Conceive of arrangements for accompaniment on Orff's Schulwerk and other pre-given musical instruments;  
– Improvise on or compose smaller musical wholes (rhythmic and melodic) in various genres and styles;  
– Conceive of the music for a school

*play, event, or performance (Ibid., 8).*

The Serbian document stresses that the elementary level entails minimal, the intermediate level – average, and the advanced level – above average achievement. Unfortunately, this is not sufficiently explained in the standards. It is most important to stress that in some areas individual levels are not given, which of course means that they have not been properly covered. This is especially seen in the illogical move to leave out average student achievement (the intermediate level) in the areas of *Musical Performance and Musical Creativity*, followed by the presence of above-average student achievement (the advanced level), which certainly cannot be considered more important than the average one. In spite of the clearly expressed desire of the authors of standards for the course in Music that these standards should provide guidelines for teachers, we still have no data on how these standards have shown in practice, i.e. in the teaching process. This kind of check would show if there is perhaps a need to revise or complete the standards (by adding the outcomes that have been left out). In defining the outcomes of each of the four areas listed above, twenty eight standards have been used, in which the authors call upon the key components of studying: basic knowledge, creative capacities, and critical thinking. By analyzing the outcomes defined in the *Educational Standards*, all categories have been encompassed, pertaining to memory, understanding, application, analysis, valuation, and creation. Regardless of the fact that the outcomes in the domain of musical creativity (an area that is often overlooked) at the advanced level are very ambitious, since it is expected that, upon the completed primary education, the student should be able to *Conceive of arrangements for accompaniment on Orff's Schulwerk, ... conceive of music for a play, performance*, they can still be very supportive for the work of teachers. At the same time, in the standards covering creative activities, we notice common formulations describing competences, followed by verbs expressing measurable knowledge and skills (e.g. students understand, students know, students are able to...), which provides a broader context for this area in the Serbian document.

## 5. CONCLUSION

If we compare the wholes in which student achievement in music and art in the three cycles of compulsory education in Croatia is

defined, we can conclude that this approach to teaching music is rather general. The outcomes in the Curriculum have been organized in five areas. The areas are related to music in a variety of ways, sometimes directly, sometimes indirectly, where the approach is sometimes immanent and sometimes nonmusical. Therefore, the names of the wholes described above, within which outcomes are given, sometimes show a greater and sometimes a smaller connection with music as an autonomous area.

In the wholes and outcomes stressing music reception and perception, familiarization with the elements of music, and participation in musical activities, it can be seen that musical activity takes the most important position. Through singing, playing, listening and analysis of musical pieces, the student participates in the teaching process and learns about music, develops his or her skills, creates new (musical) patterns, which all fosters his or her musical development. In this way, the world of music is compliant with the student's world. However, within the wholes we have also found some outcomes which depart from the goal of teaching music, from its tasks, but also from (realistic) student achievement, since in their nonmusical connotation they do not influence the development of the student's artistic identity, not even indirectly.

Since even before the Curriculum the Croatian system of education had been partly reformed (Catalogue of Knowledge and Skills, Croatian National Educational Standard), in this period teaching music had gone through significant changes. The change of conception certainly meant advancement for the theory and practice of music education. The open didactical system provided teachers with an opportunity to select contents, methods, forms and conditions of work with students, which offered a new input for the program goals to be achieved. Since music teaching reform was at its peak between 2002. and 2006., all things stated reflected on and became constituent part of the [Plan and Program \(2006\)](#). The Curriculum Framework was adopted only in 2010, and, at least when music is concerned, it introduced only slight changes, which partly even contradict the established guidelines and fundamentals of contemporary teaching of music.

In Montenegro, knowledge standards/program outcomes at the end of the cycle define basic expectations that have not been separately systematized. Rather, they stem from the previously presented developmental achievements. The knowledge standards still need to be categorized more clearly by the

level, as has been done in Serbia. Although the latest revision of the curriculum (2013) strove for a reduction of requirements and removal of superfluous material, further evaluations should be conducted on the basis of practical results. Then, these good grounds could be used to introduce more realistic and useful amendments to the program. The question of financial resources is also posed – do all music classrooms in Montenegro have the material resources needed for the program to be implemented? How much are teachers supported to carry out all activities defined in the syllabus, and can they be realistically implemented given the number of weekly classes provided? A comparison with curricula and programs from other countries in the region, sharing experience and using the examples of good practice, can contribute to devising more appropriate documents, which would serve as a grounds for and support to a quality teaching process, within realistically defined constraints.

The biggest positive effect of Educational Standards in Serbia may be seen in the fact that they now contain parameters for measuring competences, and also that their evaluation is now possible. The major drawback in this document, on the other hand, would be the lack of a stronger link between this course and skills attained by the students in the process of their education for the new age, for using modern technologies, and also the lack of stronger links with other teaching areas. If the standards are to be applicable, and if they are to ensure that the quality of education in Serbia should be promoted, they need to be harmonized with modern educational trends, with the current teaching and learning model and teacher education, so that their implementation could provide the grounds not only for promoting the current program, but also for a better learning process and more active student participation in this process.

Based on the analysis of the syllabus, curriculum and standards in Croatia, Montenegro and Serbia, one still finds it necessary that the outcomes for forming (new) program and educational standards be redefined. In addition to all things stated above, it is also necessary that all stakeholders in the process of education, in particular teachers, be responsible in the process of improving the quality of the educational system. It is precisely in the combination of examples of good practice, clearly based on the professional imperatives of music education, and theoretical research and harmonization based on scientific criteria,

that we can all contribute to the success of reforms and introduce a new syllabus, or entire curriculum, tailored to the student.

### **Conflict of interests**

Authors declare no conflict of interest.

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## SOCIAL DIALOGUE AND PARTNERSHIP IN VOCATIONAL EDUCATION AND TRAINING

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Received: May, 14.2015.

Accepted: June, 01.2015.

Original Article

UDK 377(497.7)

**Abstract.** Vocational education and training systems in the Republic of Macedonia have been put under strong pressure for modernisation in the last decades. In addition to economic and political globalisation, technological innovations brought rapid changes in the type of jobs and the content of labour in the national economies, which lead to change of the demand for qualifications and new skills on an on-going basis; the open market and migration expanded opportunities for work within and between countries, and the complexity of the demand for new skills on the labour market have dramatically begun affecting and shaping the structure, organisation and content of vocational education and training.

This report is based on the experiences from the collaborative approach applied in the development of the Strategy for Vocational Education and Training in a Lifelong Learning Context for the Republic of Macedonia, implemented through a process of consultation with a broad stakeholder basis. It addresses the participants in the process, the steps undertaken to ensure involvement of stakeholders and ultimately ownership over the process (or its components), the obstacles encountered and steps undertaken to address them, the problems, their causes and proposals for preventing and/or eliminating them, as well as the lessons learned and recommendations for further development of the social dialogue and partnership.

**Keywords:** *Vocational education and training, Reform, Modernization, Collaborative approach, Partnership.*

### 1. INTRODUCTION

Vocational education and training systems in Europe have been put under strong pressure to modernise in the last decades. In addition to economic and political globalisation, technological innovations brought about rapid changes in the type of jobs and the content of labour in the national economies, changing the demand for qualifications and new skills on an on-going basis; the open mar-

ket and migration expanded opportunities for work within and between countries, and the complexity of the demand for new skills on the labour market began to dramatically affect and shape the structure, organisation and content of vocational education and training.

Today's global economic crisis introduced and is expected to continue to put additional pressure on vocational education and training. The adaptability of those losing their jobs in an environment of reduction of public and private financing and the ability and flexibility of VET systems to provide sufficient competences and abilities for work mobility and learning to those young persons and adults who are and/or will be in the process of learning remain the most significant challenges facing VET. The extent to which VET systems are able to respond to their new roles and tasks will depend primarily on educational policies, on the ability and readiness to implement best solutions and the ability to efficiently use the resources and capacities at the disposal of the countries in Europe and the world. This task is a huge challenge for the Republic of Macedonia.

In parallel to the need for enhanced economic and political interventions, the country is facing challenges for improving the quality and efficiency of vocational education and training. It is making efforts to harmonise this education system with and adapt it to the standards applied in the countries of the EU.

The dynamic of change in the modern economy is so intense, that it needs permanent monitoring of the situation and quick reaction to emerging needs for new occupational areas and/or profiles. Mutual interdependence of labour and education requires the development of a sustainable early warning and planning system which will assess the impact of new curricula on the labour market and education, and will register and timely respond to the feedback provided by VET clients, students,

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employers, universities, schools and other stakeholders. The development of an efficient and functional model of social dialogue is of exceptional significance for effective and efficient realisation of these goals.

The main purpose of social dialogue is the promotion of consensus building and democratic participation of main stakeholders in VET. Social dialogue, through collective negotiations and consultations, provides the stakeholders with an opportunity to influence the decisions that affect them or that pertain to issues of common interest, by means of consensus building and democratic participation.

Within VET, social dialogue is a vital component in the achievement of the goal of attractive, quality and relevant VET. The implementation of a successfully structured social dialogue has the potential for efficient solving of the key education issues, for practicing of good governance, for improvement of the quality and stability of the VET system and for strengthening its development. VET stakeholders bear the greatest responsibility for the implementation of education reforms or initiatives, and without their full involvement in the key aspects of education policies, such reforms and/or initiatives cannot be fully realised, often failing.

Social dialogue affirms its importance not only in the processes of setting the agenda and aspirations of the country for socio-economic development, but also in the processes of defining the country's strategic directions in education, in the formulation of VET policies, in their implementation, and in the review/evaluation of the outcomes and impact of the said policies.

Multisectoral interdependence in the functioning of VET places at the forefront the issue of (lack of) success of the social dialogue, as a process that should bring together the interests, needs and potentials of social partners into a platform on which future interventions in VET are based, a platform on which the country's aspirations for socio-economic development rest. Wise economic growth requires wise (re)designing and functioning of the VET system.

The choice of a model of social dialogue can differ according to how democratic the capacities of the country and how "wise" VET policy-makers are. It varies between centralised, declarative and proactively collaborative.

The centralised model of social dialogue is unidirectional and moves from the centres of power to the social partners. This model establishes the interests and decisions of the

central government as a "joint" platform to which social partners should adjust their interests and needs. In the name of a divided majority, all decisions on the development of VET are adopted by a unified minority of political power-holders and/or expert individuals or groups. It does not provide for an opportunity to translate the interests and needs of stakeholders into joint and coordinated action in VET and socio-economic development of the country, and most often it does not reflect the reality, thus ending in failure.

The declarative model of social dialogue addresses the legislative right of social partners to take part in the (re)designing and functioning of VET; representatives of the social partners are part of the process (through bodies, commissions, ad-hoc groups, etc.), which is on-going within the VET system and which has as its goal its improvement and development. Most often, this model of social dialogue is manifested through a large number of signed memoranda of cooperation between those responsible for education policies and social partners or stakeholders. They officially make a commitment to collaborate, which is in essence declarative because it is hardly or very marginally operationalized in practice. Despite the possibility provided by law for social partners to influence the development and functioning of the VET system, their participation is marginalised and is often not reflected in the policy decisions adopted in VET.

The collaborative model of social dialogue is a decentralised model of collaboration and decision-making, providing opportunities for high-quality findings and insight in VET that can improve its development, policy setting and defining of its future goals and activities. It enables active participation of the most relevant stakeholders in the processes of analysing the situation, forecasting future needs, planning, organising and delivering VET and monitoring and evaluating the results. As a practice, this model can be a powerful tool for strengthening the relevance, attractiveness and quality of VET.

If we take a chronological look at the situation in the Republic of Macedonia, we can conclude that all three models of social dialogue appear in full or partially in the development of the country's VET system.

The application of the centralised model of social dialogue characterises the period in which the Republic of Macedonia was part of the former SFRY. Up to 1985, VET was an integral part of the single education system

and subject to centralised creation of education policies.

With the adoption of the Law on oriented vocational education in 1985, VET became one of the main priorities of policy-makers. According to this Law, oriented vocational education was a “constituent part of the single system of associated labour and a significant factor of societal reproduction in the development of manufacturing force, in meeting educational and staffing needs of associated labour and of society as a whole, in the liberation of labour and man, as well as in the holistic development of the individual and progress of the socialist self-government society”. (Law on oriented vocational education, Official Gazette of the Republic of Macedonia No. 16 from 22 May 1985)

The business sector or so-called organisations of associated labour were deeply involved in the design of policies and delivery of VET, establishing a close and interactive link between business entities and education providers. This period is characterised by establishment of company education centres/schools. The thorough involvement of business entities in the formulation of education policies, in the management of education providers and delivery of teaching and learning, including practical teaching and training, creates an impression that a collaborative model of social dialogue was practiced. Such an impression would have been correct, if the social dialogue had been carried out respecting the principles of an open labour market, and if it had not been compromised by the country’s economic development policies, especially employment policies.

Economic development in former Yugoslavia was based on a so-called social consensus which required: full employment, free education, free health care and full equality in the distribution of benefits. Creation of education policies was directly conditioned by the commitment to the policy of full employment. Depending on the number of unemployed and the saturation of the labour market with educated persons in a given sector, cabinet decisions were made on decrease of the education offer, or in a worse case, on the temporary pause in the work of specific education institutions. The foundation for this policy was to be found in the understanding that each finalised (graduated) education profile “thrown” onto the labour market by the education system, must be matched by an appropriate labour equivalent, i.e. appropriate job. Thus, it was frequently the case that jobs were invented so as to achieve

full employment and/or to employ the population that arrived en masse from the rural into the urban areas, and to employ the huge number of individuals with party membership cards. In such a case, employment of new workers is carried out irrespective of the real, objective needs of the economy. This created the impression of a virtual regulation of the labour market, but in the majority of cases it resulted in a loss of productivity and continuing increase of over-employment as a special form of covert unemployment, which emerged with all its adverse consequences at the transition toward market economy. This brought about an increased number of workers occupying positions for which they lacked the necessary qualification and training, increased number of workers without actual work, decreased power of enterprises, poor utilisation of capacities, increased number of unemployed with qualifications and expertise, etc. The extent of the erroneousness of this policy is best revealed by the fact that in 1986, 36.14% of workers in the social sector occupied jobs requiring higher qualifications. It is evident that the projections of the development of workers, i.e. the matching of the education supply and demand was flawed and lacked a correctly applied collaborative model of social dialogue. (Statistical Yearbook of the Republic of Macedonia, 1992)

The application of the declarative model of social dialogue is characteristic for the period after the independence and adoption of pluralism and market economy. The increase in the number of VET stakeholders (local government, private sector, trade union, chambers, etc.) and the awareness of the need for a dynamic link between the economy and social development and the education supply spurred an enhanced debate on the future of VET, which resulted in involvement of stakeholders in the process of VET policy creation and in the work of education institutions. All this was accompanied by legislative revisions which culminated in the adoption of the Law on vocational education and training in 2006. (Law on Vocational education and training, Official Gazette of the Republic of Macedonia No. 71 from 08.06.2006)

Stakeholder representatives became part of management bodies of VET schools, albeit without a right to make real decisions, i.e. to vote; they take part in expert commissions and working groups/bodies of government and expert institutions/agencies, they are entitled to declare and voice their interests in VET and to

undertake initiatives. This period is characterised by the signing of a number of protocols of cooperation, establishment of professional associations and bodies and other initiatives for mutual collaboration. Unfortunately, despite the publicly declared pledges for collaboration and joint creation of VET policies between central authorities and stakeholders, these initiatives do not display in the practice the features of a collaborative model of social dialogue, because the level of involvement of stakeholders in VET, especially the business sector, still lacks the desired intensity and quality. The reasons for this can be found in the insufficiently specified role (competences/responsibilities, benefits), in the legislative framework, poor motivation of the business sector for cooperation, the economic crisis which destabilised collective initiatives, shortcomings in the work of the professional institutions and bodies, shortcomings in the systemic set-up of VET, etc. Taking all this into account, the practicing of the social dialogue in VET is more declarative than collaborative by nature.

The huge impact of globalisation on the Euro-Atlantic aspirations of the country, access to best practices from developed countries, high unemployment and the need for enhanced economic development have all highlighted the role of VET in the country's development. Questions of quality of VET and its relevance to the labour market and life in general have become topics of debate in a number of expert and public debates, meetings and conferences. The need for youth and adults to through education acquire "new" skills – adequate for the "new age" emerged above all from the reaction of the business sector, clearly stating the demand for redefining the role of stakeholders in the creation and implementation of VET policies.

The opinion that education and labour should pursue an interactive relationship, which has been voiced for a number of years by the expert community, is slowly becoming the opinion of the business community as well. This is a natural evolutionary process where the need changes the opinion and behaviour. For many years the business community has been a passive recipient of VET system "deliverables", without showing any initiative and taking a proactive role in the production of "new" workers. Faced with the challenges of new technologies and the need for workers with appropriate skills sets, the business community has focused its interest on education and voiced its demands for its greater rel-

evance.

In parallel, dynamic changes in life brought to the forefront the need for VET to not only prepare quality workforce but also active citizens, "armed" with skills for lifelong learning and prepared for national and international mobility. This clearly made the point that VET is not an issue of central government, but one that affects all stakeholders.

In establishing necessity as a driving force for changing the reality, the need for redefining the architecture of social dialogue in the country was highlighted. It has become evident that it is not sufficient only to have a legislative framework which provides for participation of stakeholders in the creation and realisation of VET policies, but that what is needed are mechanisms for their active involvement, which can yield good results in the practice. This represents the foundation for the application of the collaborative model of social dialogue in VET.

Several initiatives have been undertaken in the country in recent years for establishing a collaborative model of social dialogue in VET. Most characteristic examples for the practice of collaborative model are the evaluation of VET reforms and the development of the VET Strategy and Action Plan in the context of lifelong learning, carried out between April 2012 and March 2013. The project supporting the development of this country strategy was supported by ETF as a response to the needs for collaboration expressed by the Ministry of Education and Science and the VET Centre. (ETF, 2010: Collaborative evaluation of the impact of the reformed 4-year secondary vocational education, Skopje)

## 2. MATERIALS AND METHODS

### Report on the collaborative approach of the VET strategy process

The Country Strategy for Vocational Education and Training in a Lifelong Learning Context is aimed at strengthening the attractiveness, relevance and quality of vocational education and training, enabling it to play a major role in the improvement of professional performance, competitiveness and innovation. The future VET system is expected to offer more diversified and flexible learning opportunities to youth and adults to acquire skills necessary for their career development and to stimulate their entrepreneurial spirit,

whilst fostering participation in further education and training, and contributing to active citizenship and personal fulfilment. The new architecture of VET should promote both excellence and social inclusion, contribute to greater employability, mobility and job security, enhance anticipation and management of labour market shifts and encourage business competitiveness. Vocational education and training policy needs to be geared towards the skills requirements of the labour market and economic sectors, and based on more effective social dialogue in an environment of ever growing international cooperation.

The methodology applied in the development of the Strategy builds on the latest achievements in VET policies and practices in the EU, most notably the Copenhagen, Bruges and Torino processes. Designed as a participative collaborative process, it led to evidence based analysis of domestic policies and practices in VET and to a set of specific recommendations and practical proposals and a structure for their implementation. The methodology fully reflects the principles of the Torino process:

- importance of ownership, leadership and stakeholder participation, epitomised in the collaborative approach;
- holistic approach linking education, training, employment, economic and social development through, among others, active participation of stakeholders from the education, social and economic field in the process;
- focus on evidence to guide decisions.

The research did not focus only on the breadth, but also attempted to go in-depth into respective issues. This approach was conditioned by the objectives, scope, duration and desired coverage of the research, but primarily by its nature as predominantly qualitative research.

The new VET strategy established a new approach to analysing the situation in VET by applying a collaborative approach. This approach was a relative novelty in the country, as it actively involved all stakeholders in different stages, giving them a developmental role - an opportunity to be consulted and to contribute to the growing pool of evidence and to the final document, and ensuring their opinions are heard and input valued, thus enhancing their sense of ownership and accountability for the final product. Through outcome-based research, consultations and analyses, the consultation process resulted in an extensive evidence base on the quality and relevance of the VET from the perspective of

a broad base of stakeholders.

The consultation efforts of stakeholders were an excellent example of a collaborative, systematic and interactive process involving VET clients, stakeholders and policy-makers for the purpose of exchanging information, initiating and addressing specific pertinent issues, discussing alternative solutions, and devoting effort to overcoming differences. All stakeholders participating had the right and expectation to be consulted, since the proposals and policies under review impact greatly their life and work, and it is them who are expected to implement or contribute to the new policies and practices.

### 3. RESULTS AND DISCUSSIONS

#### Lessons for future policy and practice of social dialogue and partnership in VET

The experience from the stakeholder consultation activities within the process of development of the Strategy for VET in the context of lifelong learning allows us draw some lessons that might contribute to the strengthening of the collaborative model of social dialogue in VET in the country. Certain aspects, if kept in mind, will help improve the quality of process and outcomes of social dialogue.

#### When to start?

Social dialogue is not an activity to be ticked off as completed, but rather a process permeating all actions undertaken, from the very first to the very last. It proved useful that the Launch of the Project was used for awareness raising on the importance of social dialogue and for lobbying with and selection of appropriate stakeholder representatives who would take part in it. To this end, the professional integrity of the process and the team leading it also contributed to various stakeholders understanding the ethos of the process and committing to it. Also, the planning process needed to be adapted to the specificities of the dialogue partners and take into account their schedules; their involvement outweighs the rigidity of any plan, even the best.

It is to be expected and hoped that the dialogue will continue well beyond the adoption of the VET Strategy and Action plan. It will be a crucial tool for ensuring and monitoring the implementation and evaluating the

impact. It is exceptionally important that the stakeholders remain partners, and have a place on the Strategy Council or whatever other or additional national or local structure is created to support the implementation of the VET Strategy.

#### Who to involve?

The work of the Stakeholder Steering Group, through the participation of different ministries, institutions and professional bodies, provided the necessary intersectoral mechanism in the development of the Strategy. It was crucial during the selection of the representatives to secure the involvement of individuals with professional background, who were familiar with the problems of VET within their area of operation, but were also in a position to speak on behalf of their institution/sector and to ensure an internal flow of information, findings and recommendations to and from higher decision making instances.

In regard to the selection of participants in the social dialogue, it was important to ensure that the stakeholders involved represented not only their own interests, but also had the necessary competence and knowledge, and trust of those they represented to speak and listen on their behalf. The vertical/hierarchical representation of the stakeholder basis, including highest level of policy-makers as well as practitioners, large companies and chambers as well as small local business, gave the social dialogue the necessary legitimacy. Involvement of dedicated organisations and non-partisan individuals, with proven track record of advocating for the interests of those they represent, but also with familiarity of the topic at hand, are a guarantee that the outcomes of the dialogue will not only be acceptable to others, but will contribute not only to the improvement of the quality, relevance and attractiveness of the future VET system, but also of the sense of ownership and accountability for the process. The selection of regions where the social dialogue was conducted ensured equitable representation of various stakeholders in regard to their geographic, regional, ethnic, occupational, financial, etc. background.

In this sense, it is also important that the expert team members possess the necessary expertise and experience not only in VET but also in management of consultation processes, and also have professional integrity and have earned respect of the partners in the dialogue.

#### How to proceed?

The organisational structure of the process of development of the Strategy created a vertical link and communication between the highest state champions and institutions, through the professional bodies and agencies and VET schools to the VET clients – the employers. The basic difference between this and other research lies precisely in its collaborative nature, with active involvement of a number of equal partners with clearly defined interests and objectives, but open to take in other perspectives in a process of consensual identification of national priorities and strategic directions.

One of the elements ensuring the participation and contribution of key partners and interlocutors was the support from MoES, ETF and the VET Centre. The Letter of Endorsement issued by the State Secretary of Education, albeit with delay, provided the necessary leverage and assurance that this process would result in tangible positive effects for all concerned and involved. One of the strong points of this process was the recognition from the beginning, that the greatest added value towards quality of the Strategy and ownership of the process was the enhanced social dialogue as a mechanism for its development, which was made clear in the support from the highest decision-making instances.

Collaborative approach and social dialogue are possible only if the involved parties take ownership of the process and view it as “developmental”, and not as an attempt to detect “weaknesses” in their work. This is valid for the state institutions and professional VET bodies as well as for all the others (VET schools, teachers, students, employers, universities, chambers, employment services, etc.). Therefore, those responsible for the consultation process must be careful in how they approach the involved parties and design the instruments. The development dimension must be strongly and clearly emphasised, and any element that could possibly cause fear or criticism of the involved must be eliminated.

Social dialogue through the collaborative approach required direct contact and consultation with stakeholders on “their turf” and gaining insight into the current situation, their work, problems, needs and desires. The involvement of a larger group and various types of stakeholder representatives (expert institutions and bodies, students, teachers, managers, employers, local government, local and national employer associations and chambers

of commerce and crafts, local and central Employment Service Agencies, NGOs, international donors, institutions etc.) eliminated the weaknesses of a “delegation” approach, where it is questionable whether the individuals actually represent the interest of the sector or the institution and whether a two-way flow of information and knowledge is ensured. The democratic participation of the main stakeholders in VET, both provided them with a sense of importance and strengthened their ownership, and also provided them with a direct opportunity to exert influence over decisions that affect them in a matter of joint interest. This is the essence of social dialogue.

#### What to be keep in mind?

Each collaborative process faces the problem of “ascertaining the truth”. There is a threat for the consultations to be carried out with individuals, inappropriately delegated to represent key stakeholders, who are not familiar with the issues in VET. Their opinions in regard to VET do not correspond to the reality, lack argumentation and may misguide the process of decision-making. Another threat lies in the possibility for different versions of the “truth” presented, when a party puts its own interests above those of others or the community, or even the country. Special care should be taken to carefully exam such contributions, reflect on and triangulate them against other input, and select those contributions that are demonstrably aimed at improving the quality of both the VET Strategy and the system it aims to establish.

Another issue to be cognisant of is the question whether collaborative consultation process or social dialogue at the same time includes collaborative writing. It is to be expected that parties would like greater attention focused on issues pertinent to their area of work or influence. In the VET Strategy development process, it was important to have the initial findings presented to the stakeholders, incl. policy makers, expert bodies, VET schools, employers and their associations, local government etc., in an open and active dialogue, so that the findings could be verified and validated, to avoid later questions about their validity. In addition, the Minister’s expert review group provided a clear focus and legitimacy for policy decisions, helping avoid possible interests or influence, and ensuring that they reflect the intentions and directions of the highest decision-making levels.

## 4. CONCLUSIONS

Process of governance in VET globally operates on a multi-level and between multi-stakeholders, and the latest improvements in the legislative framework of VET testify to the country’s efforts for systematic involvement of the key stakeholder communities, local authorities and relevant state agencies in the process of policy development, implementation and review.

It is important in the coming period to intensify social dialogue in the country in the processes of VET governance. The role of stakeholders dominantly positioned in implementation or use of the outputs of the VET system, needs to be upgraded through their participation in policy-making and management in VET. This will strengthen their active participation and the degree of their accountability for VET interventions and their effects.

The role of the business sector in decision-making and management of VET providers and their quality assurance processes should be improved with the adoption of legislative measures and application of new collaboration models and mechanisms. The status of the business sector as a stakeholder should evolve into that of a partner in VET

Funding for the public secondary VET system is provided by the Government. Enhanced efforts are needed for attracting and benefiting from diverse funding sources and schemes, and mechanisms should be developed for their utilisation as “models of cost-sharing between different partners in the educational process – the state, businesses and individuals, foundations and alumni – with public investment helping to leverage private sector match-funding”. (ETF, 2010: Collaborative evaluation of the impact of the reformed 4-year secondary vocational education, Skopje)

The introduction of a training fund in the state budget presents an efficient tool for strengthening the participation of youth and adults in education and training for acquisition of qualification and/or retraining. The training fund can have as its source a percentage of the personal income tax, a percentage of the overall revenue of the business entity, external assistance (European funds, donors, etc.), joint investment by the government and the private sector, etc.

In the context of devolution of responsibilities, local governments should be encouraged, and on their part interested, to secure additional resources to support local VET de-

velopment, and companies “should increase investment in initial VET notably through their involvement in alternative training models, but also by supporting schools with adequate equipment”. (European Commission: Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: Rethinking Education: Investing in skills for better socio-economic outcomes, Strasbourg, 20.11.2012, COM (2012) 669 final)

Education providers themselves should be encouraged to, and rewarded for, initiating and developing additional income generation activities, which whilst ensuring staff are remunerated and motivated for additional efforts, should also be used to improve the quality and relevance of education and training provided to all beneficiaries throughout the institution, and also to intensify the social dialogue with the business sector and local government.

Social dialogue in VET should be set up according to the principle of functionality and based on the principle of partnership. The role of social partners in VET needs to be effectuated through their active role in policy creation, and development and management of VET.

The business sector needs to find its own interest in the VET system and in the process of development of education policies. It must transform itself from an indifferent into a critical partner of VET providers, agencies and the state.

### **Conflict of interests**

Authors declare no conflict of interest.

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# CORRELATION BETWEEN FUNCTIONAL ABILITIES AND AGILITY RESULTS IN CHILDREN WITH KYPHOTIC POSTURE

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Received: May, 14.2015.

Accepted: June, 06.2015.

Original Article

UDK 616.711-007.5-053.5(497.11)

**Abstract.** The aim of research was to determine statistically significant canonical relations between functional abilities and achieved agility results in children with kyphotic posture. The realization of such task would create possibility to come up with a more rational procedure for optimal planning, programming and control of the process of teaching corrective gymnastics. The research was conducted on a sample of 46 students of primary schools in Niš, all male, aged 12 ( $\pm$  6 months), included in regular classes of PE and exercises in order to correct kyphosis three times a week for 45 minutes at Niš Health Center. The results of canonical relations with the results of the functional abilities of children with agility kyphotic posture were statistically processed in a way to provide answers to the research goal. We used the program "Statistica" 8.0 for Windows to calculate the descriptive statistical parameters and canonical correlation analysis. The results showed that there are statistically significant relations and influences between a set of variables for assessing functional ability, as a predictor system, and agility, as a criterion variable.

**Keywords:** *Functional tests, Agility, Cognitive psychology, Canonical correlation analysis, Children with kyphotic posture.*

## 1. INTRODUCTION

Numerous analyses prove that the volume and quality of physical exercise affects health. Insufficient mobility leads to a poor condition of the musculoskeletal and nervous systems. Consequently, there is a growing number of school children with disorders of locomotion, especially the joints and spine.

Kyphotic posture, or so called kyphosis is a postural disorder at the level of deformity, located on active and passive elements of the spinal column, expressed in the sagittal plane. The main characteristic a kyphotic bad posture is reflected in a specified curve, which is usually of partial (local) type, and is located in the

chest (thoracic) and is commonly referred to as stoop or slouch (Popović and Milenković, 2008; Duraković, 2008; Bogdanović and Koničanin, 2009; Bratovčić, et al., 2009).

The results of medical examinations for enrollment in the first grade of two primary schools in 2014. in Niš show that 23% of students have bad posture, and a deviation from the normal foot was found in 33% of boys and 30% girls. An early diagnosis of kyphotic posture and prevention exercises are of special importance for the prevention of the further development of this condition.

Functional capabilities have a major impact on the results of motor behavior of children, since in an appropriate relation to motor agility they positively contribute to the achievement of sports results (Marinković, 2012; Malacko and Popović 1997).

The aim of this study was to determine statistically significant canonical relations between functional abilities and achieved results in agility in children with kyphotic posture. The realization of such goal would create a possibility of forming more rational procedures for optimal planning, programming and control of the teaching process.

## 2. MATERIALS AND METHODS

The research was conducted on a sample of 46 students of primary schools in Niš, all male, aged 12 ( $\pm$  6 months), included in regular classes of PE and exercises in order to correct kyphosis three times a week for 45 minutes at Niš Health Center.

Three tests were performed in order to assess the functional abilities. vital lung capacity (FVKPL), systolic blood pressure at rest (FSIKP) and diastolic blood pressure at rest (FDIKP). These tests were used in Heimar and Medved's research (1997). The assessment of motor agility was defined in the

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following tests: envelope test (MKOT), side steps (MKUS) and the figure “8” with bending (MOSS). The measurement characteristics of these tests have been validated in research by Kurelić and associates (1975). The data obtained in this study were analysed by canonical correlation analysis.

### 3. RESEARCH RESULTS

**Table 1.** Basic statistical parameters for the evaluation of functional abilities

Var.	N	Mean	Min.	Max.	SD	Skewn.	Kurtos.
FVKPL	46	2824,622	2232,00	3154,00	2,62	0.154	2.67
FSIKP	46	113,45	103,00	120,00	3.54	0.516	1.48
FDIKP	46	75,87	59,00	89,00	2.28	0.631	2.36

*Key:* arithmetic mean (Mean), minimum (Min), maximum (Max), standard deviation (SD), skewness (Skewn.), kurtosis (Kurtos.)

**Table 2.** Basic statistical parameters for assessing agility

Var.	N	Mean	Min.	Max.	SD	Skewn.	Kurtos.
MKOT	46	19.28	14.72	21.94	2.16	0.413	0.326
MKUS	46	12.34	9.64	14.48	1.96	0.216	-0.158
MOSS	46	14.46	11.43	17.16	2.32	0.174	1.241

*Key:* arithmetic mean (Mean), minimum (Min), maximum (Max), standard deviation (SD), skewness (Skewn.), kurtosis (Kurtos.).

The results shown in Table 1 and 2 in the control group in the area of motor abilities at final measurements indicate that there is no statistically significant difference between the results and normal distribution, as confirmed by the results of the asymmetric distribution (skewness) not exceeding 1.00, which means that the tests are neither heavy (up to +1.00) nor easy (up to -1.00), but suitable for subject population and below one. Homogeneity of results (kurtosis) indicates that there is good sensitivity (test discrimination), since the obtained values are below 2.75.

**Table 3.** Canonical Correlation Analysis of functional abilities and success in motor agility

R	R <sup>2</sup>	Chi-sqr.	Df	P-Level
.72	.54	72.46	37	.000

The results of canonical correlation analysis (Table 3) showed high correlation (R= .72) between the applied functional variables system and motor variables system in the segment motor agility. This correlation is confirmed by the results of Bartlett’s Chi-square test (Chi-sqr. 72.46), that the canonical correlation coefficients are statistically significant. The Established connection has

the appropriate size of the coefficient of determination (R<sup>2</sup>=.54) which indicates a statistically significant interaction effect of the variables. This explains the influence of functional abilities of 54%. The probability of error for the rejection of the hypothesis of whether the function is significant or not, was determined by the predictor and the criteria (P = .000) at the level of 99%.

**Table 4.** The structure of statistically significant canonical factor in the system of functional variables

Functional variables	Canonical factor Root 1
FVKPL	.65
FSIKP	.52
FDIKP	.44

After examining the structure of canonical factors it can be concluded that the size of the correlation coefficients of the canonical factor functional variables (Table 4), well define the general functional ability of the respondents. Also, this factor is more saturated with vital lung capacity tests (FVKP- .65) and systolic blood pressure at rest (FSIKP- .52), than the diastolic blood pressure at rest (FDIKP- .44).

**Table 5.** The structure of statistically significant canonical factors in the system of motor variables from the agility segment

Motor agility variables	Canonical factor Root 1
MKOT	-.71
MKUS	-.62
MOSS	-.46

Motor agility (Table 5), as one of the motor skills segments, is also well defined by all applied tests. They are good representatives of the general motor agility. In this case, two tests, envelope test (MKOT- .71) and side steps (MKUS- .62), also have a greater contribution to defining the general motor agility compared to the figure “8” with bending test (Moss .46).

### 4. DISCUSSION AND CONCLUSION

Based on the results of the canonical correlation analysis of respondents (Tables 3, 4 and 5), it was determined that functional abilities (vital lung capacity, systolic blood pressure at rest and diastolic blood pressure at rest), as a predictor system, have a statistically significant correlation with the achieved agility results (envelope test, side steps and the “8” with bending), as a criterion system,

in students.

Namely, those who have achieved better results on all performed tests with whom the first canonical factor of functional abilities was determined, at the same time achieved better results on the tests with whom the first canonical factor of motor skills was determined in the agility segment.

It can be seen from the negative marks of the test saturation coefficients: pulse rate after the load (FPPO) and pulse rate at rest (FPUM) and the "8" with bending (MOSS), as compared to the first canonical factor which is defined as general functional ability. In this sense, it is clear that the negative or lower results in tests FPPO, FPUM and MOSS are actually better results. Likewise, it is clear that positive results in the FVKP test are better.

Certainly, the reverse relations also apply to this interpretation, meaning that respondents with better motor skills in the agility segment, achieved better results in functional tests, and had better functional abilities that were evaluated with these tests.

The results of this study may contribute to the rationalization of the regular classes of physical education, since special attention could be paid to the training process aimed at the development of those functional ability variables in the context of the development of motor skills in the agility segment, which would provide for the achievement of better results in the teaching process with students.

### Conflict of interests

Author declare no conflict of interest.

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## POSSIBILITIES OF TEACHERS FOR MONITORING, DETECTING AND RECORDING OF INDIVIDUAL CHARAC- TERISTICS OF STUDENTS IN EARLY SCHOOL AGE

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Received: May, 17.2015.  
Accepted: June, 04.2015.  
Original Article  
UDK 159.922.72-053.5

**Abstract.** The monitoring and recording of the individual characteristics of children are very important for the development of quality education. Also the views of the teachers about the differences in the development, the potentials and the affinities of the children in the early school period are especially important. The quality education process in the modern school should be adapted to the individual potentials of the children. The children are individuals with their own integrity and characteristics. (Johnston and Halocha, 2010). They have individual pace and develop individual approaches in the learning process. This individual pace in the development of the children requires the teachers to regularly monitor and record the individual characteristics and differences of the children, monitoring the children's interests, planning instruction which will adapt to the different learning approaches and the different pace of progress of the students.

Setting out from this paradigm, this paper, which is based on a realized research, aims to offer findings about the treatment of the individual characteristics of the early school-age children in our country. According to this, we carried out a research in four primary schools in Skopje, which showed us that the teachers lack the appropriate conditions and possibilities to monitor and record the individual characteristics and the specific differences of the students in the early school period.

**Keywords:** *Modern school, Individual characteristics, Early school age, Monitoring and recording.*

### 1. INTRODUCTION

Trying to create a modern school we got stuck on the way which leads to creating the main precondition for a modern school – support of the individual characteristics of the students. The realization of this process has proven to be very difficult in the educational practice, especially regarding the first three grades of primary education, where it is in fact most needed. Namely, the treatment of the individual characteristics in the practice moves in two directions: 1. creating a flexible education process by every teacher according to the individual potentials of the child/student, and 2. creating an educational context which is equal for every student in the same grade. The first is mainly a reflection of an enthusiastic practice, while the second is a reflection of the real (traditional) practice. About the second direction we can say "the children in the school are not "independent researchers", and there is great probability that many of them will lose their competencies and potentials, which were developed through their autonomy in kindergarten." (Koteva-Mojsovska, 2014). This means that we have forgotten the idea that a child is an individual with personal characteristics, needs and potentials, whose development depends on many factors.

The pedagogical discourse is clear: a child has to learn depending on his or her personal pace and with an individual approach in this process. This means that each student has a different cognitive, social and emotional potential. Especially this is underlined by the new ecological approach of Bronfenbrenner, according to which everyone needs various interactive processes for understanding the environment (Bronfenbrenner, J. 1997). The teach-

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ers have an obligation to provide the necessary conditions which allow the children to learn strategies and methods for good quality independent learning. The individual pace of development and progress require of the teacher to additionally engage in terms of the monitoring and recording of the individual differences, monitoring of the children's interests, planning instruction adapted to the different learning approaches and the different progress pace of the students. In this case, teachers should promote the game as a most suitable method for monitoring the child development, and for using various kinds of learning for each pupil (Samuelsson, I. P., and Carlsson, M. A. 2008). This requires freedom and creativity, as well as an entire array of different components of pedagogical theories and practices.

At first, in order to achieve this level of individual treatment in the school the teacher should continue keeping the child's portfolio, which is started as early as pre-school institution (Peters, S. et al., 2009, Einarsdóttir J, 2002). It is one of the basis for building a school that is based on the specifics of children.

Today we say with ease "A school according to the needs of the child". However, we are not quite convinced about the "according" part of this statement. Is it really so? Is the pedagogical theory ahead of the practice when it speaks of crystal or indigo children? Does the theory of differences lead towards the theoretical interpretations without taking into consideration the systemic requirements for its practical implementation? Namely, the pedagogical practice emphasizes that one of the important preconditions for respecting the differences is providing possibilities for the teachers to monitor and record the individual characteristics of the early school-age children, via a high level of systemic setting and organization. In this context, we will present the following specific conditions:

- Establishing standards for learning and development of the children/students on a national level,
- Establishing standards about the number of children in a given grade and their age,
- Establishing criteria and instruments for monitoring and recording,
- Creating a guidebook (a guide) for monitoring and recording the individual characteristics,
- Systemic keeping of a portfolio for every child and keeping an integral document for comparative recording of the differences among the children in the same grade,

- Permanent refreshing of the knowledge of the teachers regarding the developing characteristics of the children regarding a certain developing period,

- Cooperation among the family, the teacher and the school, and

- Providing a team approach in the process of interpreting and using the results from the monitoring of the individual characteristics.

Unfortunately, the individual experiences of some of the teachers in our country show that there are not adequate conditions which would allow monitoring and support of the individual characteristics of early school-age students. This is the reason why we focused on researching the possibilities which the teachers have to monitor and record the individual characteristics of children/students in early school-age.

## 2. METHODOLOGICAL FRAMEWORK

The role of understanding the individual characteristics of the students, especially in the early school age, as a basis for the development of strategies for supporting an interactive and modern teaching process, imposed the need to detect the actual possibilities in the practice for monitoring and recording the individual characteristics of children from the first three grades of primary education in Skopje. Regarding this matter, we were interested about the following question: To which extent, within one period, is the teacher able to monitor, support and record the individual achievements, interests and potentials of children, according to conditions provided for this purpose?

To determine the possibilities which the teachers have for monitoring, recording and support of the individual characteristics, we took the following conditions into consideration:

- Standards for learning and development,
- The guidebook (guide) and the instruments for monitoring and recording individual characteristics,
- The children's portfolios and the guidebook for keeping a portfolio,
- The number of children in a grade and the age difference among them,
- The knowledge of the teachers of the specifics of children in the grade they are in

charge of,

- The comparative approach in recording the characteristics of children in a same grade,

- The teacher's knowledge of the family climate of the child.

For this purpose we used the techniques survey and interview with teachers from the first three grades in four primary schools in Skopje. These techniques helped us to determine the attitudes and opinions of the teachers regarding the question of our interest, i.e. whether they have the possibility to monitor and record the individual characteristics of the children/students and whether they come across obstacles regarding this matter. The emphasis was also placed on determining the opinions of the teachers regarding the importance of monitoring and recording the individual characteristics of the children.

### 3. DATA ANALYSIS

The data analysis resulted with alarming findings related to the need of intervention regarding the treatment of the individual potentials of the early school-age students. For example, we came across interesting the answers to the following question: Are there conditions for continuous monitoring and recording of the individual characteristics of every student separately? Namely, 50% of the teachers believe that there are partial conditions for continuous monitoring and recording of the individual characteristics of every student separately, 20% of the teachers answered that there are no conditions at all, while only 28% answered that there are conditions for this type of work. The results are alarming if we take into consideration that the answer "partial" does not in fact meet the needs for a seamless realization of the individual monitoring. The partial existence of conditions means that the teachers are faced with the choice to independently provide these conditions and complete them or finish the work partially, which would potentially lead to abandoning the practice in question.

Most of the respondents contribute the reasons for the lack of conditions for monitoring and recording of the individual characteristics of the children to the following:

- The age of children (94.4%),
- The number of children in a grade (66.7%),
- The great age difference among children (youngest to oldest child) in the same

grade (83.3%),

- Lack of standards for learning and development (66.7%).

Regarding the question if you have the possibility to monitor and record the individual characteristics of every student separately in a continuous and organized manner, please state the way in which you do it, we received the following results: 50% of the teachers answered that they monitor the individual characteristics of children freely and according to their personal convictions, 33% of the teachers answered that they do this with the help of a monitoring instrument which they personally prepare, and 17% answered that they use a monitoring instrument prepared on a national level. If such an instrument does exist, it is alarming why all teachers, covered by this research, do not use it. This information directs to the probability that the instrument which is used by 17% of the teachers is not adequate for monitoring or is unavailable to all teachers. We are also left to assume that if it does exist, not all teachers are informed of its existence. In all these cases, the fact remains that most of the interviewed teachers do not use a purpose-developed instrument for monitoring and recording the individual characteristics of the students, which allows for subjective monitoring criteria.

Regarding the guidebook for monitoring and recording the individual characteristics of children, 65% of the teachers think that there is an incomplete guidebook; 23% of the teachers answered that a guidebook does not exist; while 12% answered that they monitor and record the individual characteristics with the help of a guidebook. If we attempt to interpret these answers, we will probably make the same conclusion as we have with the previous question. However, there is a difference regarding this case, which resulted from the interpretation of the answers, according to which the guidebook is created on a school level. Nevertheless, the percentage of answers according to which there is a complete or an incomplete guidebook, is sufficient for us to conclude that it is not an official and obligatory document, which again is alarming.

Regarding the keeping of a student's portfolio, where the teacher records the progress of students, we received specific data (Table 1) which show that the teacher monitors the child and makes an assessment about the progress of the child only when there are specific activities (100%). These activities however, do not refer to the developing specifics. Namely, in this case, the assessment is general

and mostly based on the recollections of the teacher up until the moment of recording the progress. The answers are presented in Table 1 where the teachers were allowed to choose several answers.

**Table 1.** The information is entered into the student's portfolio

During every period according to the specific subject%	75,5% refers to children with special needs
According to the specific activities of the students%	100%
Once a month %	3,12%
Once in three months %	/
Rarely %	/

Note: The table shows that the regular monitoring and recording during every period regarding a specific subject is carried out only for "separate students" (75.5%), which is understandable given the fact that the deviations in the development of these students are subject to close observation.

According to the interview carried out with the teachers, we came to the conclusion that the monitoring and the assessment of the achievements of the students are strained as a result of the great number of children in a grade. The number of children was stated as the primary reason by 90.62% of the teachers.

We find even more alarming the data (Table 2), also confirmed by the interview, that the recording of data related to the individual characteristics of the children, as the basis for instruction "according" to the needs of the child (the subject of our interest) is carried out only on rare occasions. Regarding this questions, the respondents answered that they do not keep a special document for summative and comparative recording of the differences they notice regarding all children in the grade they are in charge of. The respondents offered several reasons for this: 96.87% of the interviewed teachers do not record the differences among the children because they feel that they are not obligated to do this, 71.87% stated the lack of a guidebook as a reason which hinders these activities, while the lack of time was stated as a reason by 59.37% of the interviewed teachers.

**Table 2.** Interviewed teachers comment about recording the individual differences in a separate summative document

Interview answers	N	%
It is not obligatory	32	96,87
There is not a guidebook for this	32	71,87
Lack of time	32	59,37
The age difference among the students	32	/

It is interesting to mention that regarding the answers to this question, the age difference among the students was not mentioned as a reason for not monitoring and recording the individual differences and characteristics among the children in the first three grades of primary school. On the other hand, science supports the need of a comparative approach in recording the differences, especially if there is a notable age difference among the students.

During the interview the teachers answered that they monitor the progress of the individual development of the children, however, according to them, this does not include the differences among the children, which could be the basis for development and realization of various learning strategies and approaches. In fact, regarding the differences, the teachers confirmed their attitudes, which we also recorded in the survey, as reasons for the inability to monitor and record the individual characteristics of the children during a single period:

1. They are not obligated to carry out this type of activities,
2. They lack the time to do this, and
3. They do not have a guidebook for this purpose.

Along with these reasons, the teachers avoid an official form of monitoring and recording the individual differences of the children. On the other hand, all teachers agreed that apart from knowing the children, their characteristics and differences, they are not always able to adapt instruction accordingly. This implies to the informal use of one of the basic elements for development of quality instruction.

In order to better learn the individual differences of the students, it is especially important to learn about the overall family climate (Johnston and Halocha, 2010). This activity is part of the cooperation with the parents which can also be done by visiting the homes of the students. This is especially important in the first three grades of primary school when the teacher is still in the process

of getting to know the children in the grade (Koteva - Mojsavska, T., 2006). However, the results unfortunately show that this form of communication with the parents is 100% realized exclusively in specific situations (the child's adaptation problems, behavior problems or lack of interest in learning and school).

Regarding the possibilities of the teachers to support and monitor the individual characteristics of the students as well as how well informed they are, we were interested to see the different types of individual characteristics and differences among the early school-age children. We tried to find out their attitudes regarding this question with a survey – scale. The teachers were asked to choose several options related to the greatest differences among the first grade students in primary school. Most of the respondents, i.e. 66.7% contribute this difference to the concentration levels of the students and 66.1% contribute it to the pace and relevance of learning in relation to the amount of learning material. The remaining answers refer to the learning of specific instructional material (55.5%), adaptation to school, independent learning, etc. According to teachers, the differences in adaptation, as well as concentration are probably due to the fact that not all children enroll in kindergartens prior to enrolling in primary school. Also, some of them go to kindergarten from the youngest age, three or four years of age, some before starting to school, in preschool age, etc. However, although teachers have knowledge about differences in individual characteristics in children, the results of the overall survey show that this knowledge is not based on facts and is not result of an organized observation on children.

Regarding the status of the individual differences of the students, it is also intriguing that 83.3% of the teachers think that there is a great age difference between the youngest and the oldest child in the grade, which hinders the monitoring and recording activity, and especially the support of their individual development.

#### **4. CONCLUSION AND SUGGESTION**

The analysis of the data gathered by the research allows us to conclude that the teachers do not have the required possibilities to monitor record and support the individual characteristics of the early school-age stu-

dents. This is especially due to the lack of a systemic setting and organization of the monitoring process of the individual characteristics on a national or a school level. This conclusion is also evident from the opinions of the teachers that they are not satisfied with the basic conditions for this purpose. Namely, there is a lack of specific guidebooks and directions for this process and there is a lack of adequate instruments which would allow objective monitoring and drawing conclusions related to the individual characteristics of the children. The great number of students, as well as the great age difference between the students of a same grade poses another problem.

According to the stated, the teachers cannot provide continuity in the children's portfolios, which should serve as the basis for planning educational activities in a sufficiently objective manner. The insufficient knowledge about the family surrounding of the children additionally burdens the process of getting to know every child separately and renders the entire monitoring process incomplete and non-systemic.

It is encouraging however, that the teachers do know the children they teach. Nevertheless, considering the complexity and subtleness of the support process of the individual development of the children, we believe that the self-organized and enthusiastic approach to this aspect in instruction is not sufficient to create a modern, flexible and individually adapted teaching process. Therefore, in terms of the efforts and movements towards modernized teaching process, it seems that we have yet to achieve a level which would meet the basic postulates of the scientific requirements related to this matter.

Therefore, in the interest of the development and support of the modern school, several key changes related to the matter of our research are required. Namely, the overall analysis of the possibilities for monitoring, recording and support of the individual characteristics of the children stresses the need of change in the organization, program and systemic context of the early school education, in the following directions:

- Establishing a system of standards, criteria, instruments and a guidebook for monitoring and recording the individual characteristics and differences of the children,

- Change of the standards which dictate the number and the age of the children in a same grade, i.e. providing conditions for a lower number of students with a smaller age difference in the same grade, i.e. the first

grade,

- Establishing criteria and a system for keeping a portfolio for every child, as well as keeping an integral document for comparative recording of the differences among the children within the same grade,

- Providing legally guaranteed conditions, forms and needs to include the family in the educational processes by the teacher and the school, as well as organized detection of the family environment of every student, and

- Allowing program flexibility for achieving better accessibility and adaptability of all its aspects to the individual characteristics of the early school-age students.

### **Conflict of interests**

Author declare no conflict of interest.

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# THE ATTITUDES AND OPINIONS OF TEACHERS TO THEIR COMPETENCES

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Received: May, 17.2015.

Accepted: June, 04.2015.

Original Article

UDK 371.13

**Abstract.** The teaching profession is built upon the initial education on relevant pedagogical faculties, and further upgraded and improved through continuing education through various forms of professional development.

The competencies of the teacher for realization of educational activity represents the content and function of its professional obligations. Global taxonomy of teacher's competences are consisted of pedagogical competencies and professional competencies.

The pedagogical competence of the teacher has one main characteristic - it enables the organization and realization of educational process. The professional competences of the teacher, in fact, represent the competence and commitment to implement the teaching.

The subject of research in this paper is the professional competences of the teachers. The research is focused on the identification of the professional competencies of the teacher, with the possibility of extension and deepening of the established taxonomy with new competences.

The professional qualifications of teachers are closely related to the profile and characteristics of the educational system. Partial and global changes in educational systems have led to changes in competence of the teacher. In order to establish more successful future projection of the impact of teacher's competences on all school activities and arising results, the proposed changes will focus on: improving the quality of working conditions in primary schools - the basic requirements to equip with modern educational technology; changes in curriculum placement; greater efficiency of educational work; systematic assessment of the teacher, which will result in raising its position in society.

**Keywords:** *Teacher, Competences, Profession, Teaching.*

## 1. INTRODUCTION

The teaching profession is built upon the initial education on relevant pedagogical faculties, and further upgraded and improved through continuing education through various forms of professional development.

In the creation of the teaching profession, the most important are the following points:

- acquiring of general knowledge;
- acquiring of pedagogical knowledge;
- penetration into the essence of pedagogical processes and phenomena - with special emphasis on training for teaching, educational and advisory activities;
- acquiring professional knowledge and skills.

The competences of the teacher for realization of educational activity represent the content and function of its professional obligations. These include all commitments and activities that teachers need to plan and implement. In fact, that's the global role of the teacher based on its skills (Gordon, T. 1998). In determining the competence of the teacher, it starts from the assumption what it should work, for what is competent; who and what types of activities should be implement.

This determination should be in accordance with the legal and regulatory framework, as well as the pedagogical requirements that are placed on the basis of modern pedagogical and didactic-methodical knowledge and needs (Банчотовска Н. С. 2008а).

The activities which should be realized by the teacher within his professional work, are considered as a system of processes, procedures and operations. They are planned and implemented in accordance with the set of goals in the curriculum, but with respect to the specific conditions and situations (Попоски, К. 1998). Those are such types of activities that are not strictly determined. They relate

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to the overall development of the educational system, not just the student.

Global taxonomy of competences of the teacher are consisted of pedagogical competences and professional competences.

This taxonomy is called global because the offered categories are further broken down into subcategories, and some of them even on more components (Bloom, B. 1981).

Pedagogical and professional competences of the teacher in the actual educational situation continuously complement and intertwine.

*The pedagogical competence of the teacher* has one main characteristic - it enables the organization and realization of educational process. In the formulation of pedagogical competencies crucial role has knowledge, skills and habits, which were acquired in the field of pedagogical sciences (didactics, methodologies of teaching subjects, school of pedagogy, methodology of research, the history of pedagogy, experimental pedagogy, comparative pedagogy, etc.).

The knowledge of these areas contribute to a proper understanding of the theory and practice of upbringing, education and instruction, introduction to the problems of educational work, understanding and acceptance of the possibilities and ways of educational impacts and their direction towards the global target but also towards individual goals of educational work. In addition, significant for pedagogical competences are psychology, sociology, philosophy, and cognitive knowledge and skills.

*The professional competencies of the teacher*, in fact, represent the competence and commitment for implementation of the teaching. The teacher approaching disclosure and explanation to students for scientific knowledge of the relevant subject, is didactic processing of a science. Students should gain a certain degree of knowledge of the subjects and the teacher is the one that will enable it (Банчотовска Н. С. 2008b).

## 2. MATERIALS AND METHODS

### 1. Scope and purpose of the research

Subject to research are the competences of the teachers. The taxonomy of competences was introduced by Банчотовска Н. С. 2008b. This paper will approach to the identification of competencies of teachers. The identification will be realized through examining the

situation in the current educational reality.

The research is focused on the identification of the professional competences of the teacher, with the possibility of extension and deepening of the established taxonomy with new competences.

### 2. Research and Hypotheses

General hypothesis:

The professional and pedagogical competences of teachers are mostly identified based on the quality of initial education and less on vocational training.

Auxiliary hypotheses:

- In view of the implementation of the curriculum, teacher competences have been clearly understood and defined.

- Competences in relation to the treatment of the student, have already been modernized and redefined.

- Most teachers understand themselves as individuals enough competent for the activity they perform.

- The professional and pedagogical training across multiple forms and content can positively affect the promotion and realization of teacher competences.

Methods, techniques and tools of research

*Research methods:*

For this research the theoretical and analytical methodology was used.

*Research Techniques:*

- Inquiry

*Research Instruments:*

- Questionnaire

*Data processing:*

The data obtained in the research, is shown in tables. After sorting, the data is processed and displayed with the following statistical indicators: distribution of frequency (f) and percentage (%).

The population is comprised of all class teachers from primary schools in Macedonia. The *sample* was decided by random selection. The teachers examined are in lower classes of primary schools "Ljuben Lape" and "Gorgija Pulevski" from Skopje.

### 3. RESULTS AND DISCUSSIONS

#### 1. Analysis of the results of the inquiry of the teachers

The interpretation of the results will be focused on requirements relevant to the scope of this paper. Answers of the questions of the closed type will be displayed in a table with a comment on the results. In the tables is entered data distribution frequency (f) and the percentages expression of the frequency (%). On the upper right corner of some part of chart is added the total number of respondents from two primary schools. In the bottom horizontal line of the chart is shown the total number of respondents who answered according to given alternation of the question.

Teachers from the primary school «Ljuben Lape» in the tables are marked with no. 1 and the teachers from the primary school «Gorgija Pulevski» with no. 2.

With these questions we open an opportunity to see some of the opinions of the teachers on specific issues relevant to the research that we are conducting. The analysis will allow us to find the comments, and then we will connect with other research results.

#### Analysis of the Question 1: What are your competences as a teacher?

The question is set to come to the realization that teachers know what are their competences, i.e. whether they are able to identify them. We are not entirely satisfied with the answers because we expect that teachers will be able to fully demonstrate their competencies. Namely, some teachers on this question gave generic answers; some of them partially answered the questions, indicating some of their competences. But some of the teachers stated more comprehensive display of competencies.

Some general answers are: «very small»; «Educational»; «Professional competence, pedagogical competence», «to devise and implement programs provided to the appropriate department, to bring innovation in the implementation and evaluation of the results «,) exclusively within the curriculum and implementation. Teachers who in detail described their competencies, gave the following answers: «My goal are the daily training, exchange of ideas and data, analysis of teaching», «teaching plan, realizing the teaching, the present school, participate in teams, committees - participation in seminars, trainings, projects», «to devise and implement programs provided to the appropriate department,

to bring innovation in the implementation and make evaluation of the achieved results»; «education and upbringing of the students, planning and implementation of teaching - regular, additional, extracurricular activities, assessing, monitoring, evaluation of students, working with children with special needs «,) responsible and reliable realization of teaching and educational process, including cooperation with parents and peers. «

From the analysis of the answers to this question we can conclude that teachers are familiar with their competence, however, it is precisely their classification. So the teachers properly and timely applied the competencies in the educational process, including any additional movements and activities in schools.

Question 2 reads: Is competences gained:

- a) during the university study,
- b) through professional development,
- c) through the practice,
- d) equally across all the above mentioned

phases.

The results are presented in the Table «Way of acquiring competence»:

**Table 1.** «Way of acquiring competence»

Question number 2	a)		b)		c)		d)		Total	
Teachers	f	%	f	%	f	%	f	%	f	%
School 1	/	/	4	2,66	2	13,33	9	60	15	100
School 2	/	/	3	20	1	6,66	11	73,33	15	100
Total	/	/	7	23,33	3	10	10	20	30	100

From the analysis of the responses to this question we can conclude that most of them (66.66%) reported for the last offered answer - that all phases are equally important for the acquisition of competences. A small number of teachers think that the competences acquired solely through professional development (23.33%), i.e. exclusively through practice (20.00%).

Analysis of the Question 3: What do you think, which are the professional competencies relating to your competence and determination to implement teaching in terms of the content of the relevant school subjects?

This question is more concrete and the attention is focused on the teacher competencies related to the implementation of content on specific subjects. Answers relating to

competence in terms of teaching subject and underpin their implementation, are: «planning and full implementation of the curriculum», «application of modern methods and techniques in all subjects», «cooperation with colleagues, parents, professional services, students», »guidelines for working with the student outside of the school»,»vocational preparation, Bachelor of Engineering, seminars, training». »Furthermore, the following more specific answers: «my competencies are analysis and synthesis of teaching», «consideration of the material and its addition to professional literature», «digital competence, competence for native language, foreign language skills, interpersonal skills, mathematical skills...«, «individualized realization and differentiated teaching», «monitoring and evaluation of students «, «to plan an annual, topical, daily planning, to evaluate performance, to monitor the success and behavior of pupils, to submit reports and analysis to the Ministry of Education».

The answers are not specified in terms of the question, but give us some knowledge and relationships for further examination and analysis.

Analysis of the Question. 4: What do you mean which are the pedagogical competencies relating to your competence and determination to implement teaching in terms of the content of the teaching subjects?

The answers from the first aspect, are provided by the following considerations of teachers «as my responsibility is action in the classroom», «application of modern pedagogical methods in the implementation of the educational process,» «educational advisory competence», «computer skills» «appropriate methodological approach for each educational content», «keeping pedagogical records, e-diary, monitoring and evaluation of students, lectures from different areas». Related to the second aspect (subjective support), teachers provide the following answers: «Cooperation with pedagogical-psychological service with parents, cooperation with administrative services in local government, non-governmental and governmental organizations, cultural institutions,» «mentoring».

From the analysis of the questions under No. 3 and 4 we may conclude that for the teachers there is no sufficiently clear distinction between professional and pedagogical competencies. We assume that this is partial terminological barricade, and it does not affect the way the wealth and the realization of competences by teachers in primary schools.

## 4. CONCLUSIONS

The professional qualifications of teachers are closely related to the profile and characteristics of the educational system. Partial and global changes in educational systems lead to changes in competence of the teacher. Thus, competencies are supplemented, changed, transformed and perfected. Teacher, alternating itself, affects the competence and we can assume for individual adjustment of competences to the profile and to the style of the teacher.

Accordingly, we expect expansion and deepening of the taxonomy of competences of teachers, in parallel with developments in science and technology, resulting in changes in teaching (Howarth, G. A., 1999).

This paper is an attempt to present and highlight the importance of teachers' competences. Teacher's competences are especially important for the correct course of contemporary educational work that aims to continuous improvement and didactic-methodical enrichment with new and altered strategies of work adapted to the demands and the needs of the modern students.

The significance of teacher competence on the way to the course and the effects of their work are versatile. In fact, properly defined and applied competencies represent a solid foundation for the successful realization of educational goals and objectives. In order to establish more successful future projection of the impact of teacher competences on all the school activities and the arising results, we propose appropriate changes which will focus on:

- improving the quality of working conditions in primary schools - the basic requirements to equip with modern educational technology;
- changes in curriculum placement;
- greater efficiency of educational work;
- systematic assessment of the teacher, which will result in raising its position in society.

### Conflict of interests

Author declare no conflict of interest.

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# THE ROLE OF THE PREPARATORY PRESCHOOL PROGRAM FOR THE SCHOOL START OF THE CHILDREN

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Received: May, 17.2015.  
Accepted: June, 03.2015.  
Studies and articles  
UDK 373.29(497.11)

**Abstract.** The main objective of this paper is to determine the contribution of the Preparatory Preschool Program (PPP) coordination between Preschool and primary education process and analysis of all factors affecting the preliminary introduction of children for school through the implementation of the Preparatory Preschool Program.

The survey was conducted in 6 Preschool institutions and 12 primary schools in the following towns: Bujanovac, Vranje, Vladičin Han, Leskovac and Niš; the sample consisting of 173 Preschool child care workers, 180 teachers and 32 professional associates with total number of 385 respondents.

It is expected that the research results will initiate all people involved in children's education from Preschool to primary elementary school education to act and work together in order to achieve a strategic and important aim - to prepare children for school effectively, i.e. to realize successfully the basic and very important prerequisite for easy adaptation of the children in the school environment.

**Keywords:** *Preparatory preschool program, Maturity, Readiness, Readiness for school.*

## 1. PREPARATORY PRESCHOOL PROGRAM - A NEW CONCEPT OF PRESCHOOL EDUCATION

The preparatory Preschool program is a part of the regular preschool institution program which is realized with the children during the year before the school year starts, the attendance of which became compulsory from 2006/2007. Obligatory preschool preparation program gives new dimension to Preschool education process, especially considering its place in the educational system becoming an integral part of the nine-year compulsory edu-

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cation in the Republic of Serbia. Although it is a part of the compulsory primary education, PPP is realized as a preparation program for the school start in the elementary education as a part of the Preschool education (defined as part of the PSC). So, a preschool concept education was intended to be applied in the implementation of the PPP (the aim is to foster the child development, not a formal learning process, the programs to be less controlled and less mandatory, teaching methods being based more on personal experience, curiosity in the game and so on).

## 2. MATURITY OR READINESS OF A CHILD FOR SCHOOL

Most of the schools in the world use the traditional age criterion for school start, which is separated and apart from the important issues for child development. It takes very little account /or not at all on the maturity and readiness of the child to start the school. The age to start the school learning is determined by law, which is administrative and generally the age between 5 to 8 years. However, the age of children, i.e. their chronological age may not be the only acceptable criterion of maturity readiness for school, yet it can only be a certain level of their physical and mental development. The maturity readiness of the child to start the school represents a new stage in the child development and his mental and physical maturation, which has a far greater significance than the legal prescription of time and age for a child to start the school. Concerning this we should have in mind different individual variations among children of the same and similar chronological age. The variability and the meaningfulness of this term was affected by the fact that it is not just a certain level of children's physical, intellectual, emotional and whatsoever development, but it is also the ability to meet the demands posed on children

by the school, depending on the school policy, its objectives and aims as well as its content and methodology work.

Although recently, scientists in many countries have dealt with the issue of children's readiness for school, they have not still found the reliable criteria for its definition. Each of them has defined it in his own way so it does not exist as a unique definition, having in mind not that big difference between them, as much as is the starting point about how to define the term. That is why it is difficult to determine the term *maturity* and *readiness* for school, as they occur most often paralelly (as distinct, still related concepts), substituting one another (as synonyms) or neutral terms are used as *school preparation / readiness for school*.

In recent literature there are different attitudes and definitions of these terms. According to [Ivana Furlan \(1984\)](#) "maturity" has a biological connotation and has the impression that a biological growth and development is a crucial priority in the development of specific skills which are needed for success in the school. For instance, from the past there is a view that children are matured enough to start the school when they have the second teeth, which is about the sixth-seventh year of age. On the other hand, [Zlatko Pregrad \(Pregrad 1971, after allegations Karic, 2011\)](#) believes that the age and the psychophysical development may be different a lot, so the term *maturity* for school he takes to be a state of "a young person that lets him participate successfully in an organized educational process in the school "on the basis of the level of their physical and mental abilities development ([Pregrad 1971, after allegations Karic, 2011](#)).

If the interpretation of the term "*maturity of the child* for the school" by authors [Blagoje Neshikj and Vojka Radomirovikj](#) is taken into consideration, the conclusion is that "the psychophysical maturity of the child is the optimal level of the development of various physical and mental functions of the child which will enable him to master the curriculum program successfully" ([Nešic and Radomirović, 2000](#)).

[Banjac and Nikolic \(2011\)](#) point out: "Maturity is an adaptation to the school team group - to accept the authority of the teacher, to meet the demands of school and adopt a different schedule of daily activities." It means that along with the cognitive and physical maturity for school, adequate school environment requires a certain level of social and emotional maturity.

Similar interpretation of the concept of

maturity is given by [Čatić and Parić, 2009](#). According to them the maturity or readiness for school involves the child's development in all fields essential for the successful start in the primary school, i.e. for mastering the tasks and obligations he faces defined and posed by the specific educational institution ([Čatić and Parić, 2009](#)).

Given the fact that the maturity has a biological implication, more adequate term is readiness. Readiness for school is related to the possession of some necessary skills, knowledge, attitudes, motivation and other relevant characteristics that enable the child to adapt to new conditions of life and work actively, waiting for him in the school. For a child to get a positive experience at school and to perform the school requirements easily, he must be ready for it. It represents «a stage of development of the personality, which gives the child ability to participate in the systematic process of education and acquires its content knowledge successfully; it also represents the whole system of characteristics and quality features that preschool children should acquire during their physical, mental and aesthetic development» ([Kamenov, 1997](#)).

Authors [Raymond Moore and Dorothy Moore \(1989\)](#) in their book *Better Late Than Early* developed a holistic indicator for identifying readiness for school. Their "integrated indicator of maturity" takes into account: 1) the experience gained by age, 2) the ability of getting to know, understand, experience, 3) the knowledge and use of the language, 4) the physical development and anthropometric maturity, 5) perceptual ability to differentiate and 6) readiness to read, along with other factors related to it. Moore considered that the early formal compulsory education for children in schools is harmful from the academic, social, mental and even psychological point of view. They proved that, the increased number of enrolled children in special schools, problem behavior and disobedience is a result of the early child compulsory education in schools. They found out that the children of illiterate mothers from African tribes make progress more successfully either socially or emotionally rather than children of Western civilization, viewed from the point of western standards. Their key message is that the connection with the child and the child's emotional development at home, when interrupted by starting the school cannot be neither compensated nor repaired later in school. Moore considered that most children who are not still matured for the school it is much better for

them to stay at home with their parents, than to socialize with the most talented teachers in the school. This fact confirms “the importance of maturity” as a key indicator of school readiness. This stage generally is not reached to the eighth until the tenth year age for most of the children (Moore and Moore, 1989).

From all facts stated so far, it appears that the children’s maturity or readiness for school is a very complex phenomenon and it is really hard to define the valid criteria and indicators of children’s readiness for school. Summing up the attitudes of a number of authors on the child’s maturity for school, however the following components are taken into account: physical health and physical stability; emotional stability; social maturity; intellectual maturity; interest in learning, so we can talk about the general and special children’s preparation for school. *General preparation* comprises the whole physical and mental development of children, and *the special preparation* comprises individual features and activities of the general preparation. *Special children’s preparation for school* includes contents and activities, which contribute for easier achievement of the curriculum in the first grade of the primary school and adaptation to the news to be met by children in different conditions of life and work.

To determine the maturity of children for school has a great significance for their further development. The assessment of the child’s personality in the first grade is an important prerequisite for the development of a

healthy personality later on. Therefore it does matter the level of the professional psychological-pedagogical school service. Testing children for enrollment in the first grade is not only testing for school entry. It must be professional and team assessment of a child personality, a base for the further educational process. Children whose maturity does not meet the requirements of the school, experience great inconvenience, difficulties in work, which usually leads to a negative attitude towards school and learning, and often grow into negative forms of behaviors.

### 3. PREPARING THE CHILD FOR SCHOOL

Preparing the child for school is a process that lasts throughout the preschool years period as part of the fostering the child’s development as a whole. The direct objective of preparing children for school is to contribute to their maturity or readiness for life and work in the forms they exist and wait for them in school. In order to find out the views and the way the child care workers, teachers, professional associates of the school and the kindergartens assess the role of the preparatory Preschool program for school we made a survey of their attitudes on its role in preparing children for school. The survey showed the following results.

**Table 1.** The attitudes of pedagogues, teachers and expert associates of the school about the role of PPP for school

		0	1	2	3	4	Total
PPP increases the overall readiness for school.	Child care workers	F /	2	4	25	142	173
		% /	1.2	2.3	14.5	82.1	100
	Teachers	F 1	5	7	68	81	180
		% 0.6	2.8	3.9	37.8	55	100
	Professional associates of the school	F / /	2	7	16	19	
		% / /	10.5	36.8	52.6	100	
PPP contributes for the acquisition of knowledge, skills and abilities necessary to start school	Professional associates of the kindergartens	F / /	/	2	12	14	
		% / /	/	14.2	85.7	100	
	Child care workers	F / /	2	23	148	173	
		% / /	1.2	13.3	85.5	100	
	Teachers	F 1	3	15	71	90	180
		% 0.6	1.7	8.3	39.4	50	100
PPP helps to equalize the starting position of children in school	Professional associates of the school	F / /	/	9	10	19	
		% / /	/	47.4	52.6	100	
	Professional associates of the kindergartens	F / /	/	3	10	14	
		% / /	/	21.4	78.5	100	
	Child care workers	F /	1	5	37	130	173
		% /	0.6	2.9	21.4	75.1	100
PPP should have more socializing and emotional, rather than an educational effect on children	Teachers	F 2	5	21	81	71	180
		% 1.1	2.8	11.7	45	39	100
	Professional associates of the school	F /	1	1	9	8	19
		% /	5.3	5.3	47.4	42.1	100
	Professional associates of the kindergartens	F / /	2	4	8	14	
		% / /	14.2	28.6	57.1	100	
PPP should have more socializing and emotional, rather than an educational effect on children	Child care workers	F 2	1	21	68	81	173
		% 1.2	1.06	12.1	39.3	46.8	100
	Teachers	F / /	/	18	73	89	180
		% / /	/	10	40.6	49.4	100
	Professional associates of the school	F / /	/	1	8	10	19
		% / /	/	5.3	42.1	52.6	100
Professional associates of the kindergartens	F / /	2	3	9	14		
	% / /	14.2	21.4	64.3	100		

0 -do not agree; 1- Tend to disagree; 2- I partly agree; 3- Tend to agree; 4-I fully agree

Over 95% of child care workers surveyed agreed or totally agreed that PPP increases the overall readiness for school, to which over 90% of the teachers agreed as well. The high degree of consent with the first statement matches with the view of the 85% of the professional associates of the school, to which generally or entirely all professional associates of the kindergartens agreed. Practitioners have thus confirmed and justified the direct goal of PPP, which is the contribution to their overall maturity or readiness for life and work in the forms they exist and to be met later on in elementary school.

The fact that PPP contributes to the acquisition of knowledge, skills and abilities necessary for school start is undoubtedly confirmed by child care workers, teachers and all professional associates. These results are really satisfactory which indicates that respondents realize that transfer and the crossing point from one level of education to the next puts an enormous demands on the child, as for the adaptation to new conditions, situations and ways of work are not at all similar to those in the kindergarten. For the child it is a new life situation that involves a change in the physical environment, introducing adults and strangers, acknowledgment of the new teacher authority, introduction to a number of unfamiliar peers, adaptation to a new group of people, acceptance of new roles and responsibilities. Realizing the circumstances in which the child is to be put by the transition from preschool to school institution, practitioners as direct implementers of PPP activities contribute the children to acquire the necessary competencies, i.e. knowledge, skills and abilities needed to start school.

Over 95% of the child care workers agreed that PPP helps to equalize the starting point of children in school. Teachers agreed with this fact as well, although in slightly lower percentage (85%). The percentage results are very similar when it comes to the professional associates and assistants of the kindergarten and school, as well as with the fact that *PPP should have more socializing and emotional, rather than an educational effect on the children*. These results are satisfying because they suggest there is no schooling in areas where respondents act which on the other hand it is emphasized in some environments where children learn and master the part of the educational content of the first grade in the primary school, which can later have a negative effect on the learning process at school. Identical software facilities in kindergartens

and schools can make the children feel bored, reduce their interest in learning in general, and the ease with which they will perform school tasks the children have been already introduced within the kindergarten can reflect negatively on the very important process of acquiring working habits.

## 4. CONCLUSION

On the basis of the results on the role of the preparatory Preschool program for school start of the children we can be conclude that care child workers, teachers and professional associates valued the role and importance of the preparatory preschool program highly in the process of preparing children for school. In regard to this, further research on PPPs should focus on the analysis of its quality and efficiency use in the educational practice in line with international criteria in order to realize the effective implementation of the objectives and principles of preschool education and to approach gradually the system of preschool education of the European Community and of the modern world.

The objective to facilitate the adaptation of children and ease the successful start of their formal education requires evaluation instruments on the monitoring of the quality of the Preparatory preschool program which would provide dynamics and development of the educational process. In this context, following recommendations are given:

- Defining clear evaluation and self-evaluation criteria for existing practices that will contribute to an objective assessment of the quality of work in the preparatory groups and the first grades of elementary school. It is very important to choose and focus on a specific aspect of the problem carefully - and to plan self-evaluation in relation to it, which will lead to quality changes in the implementation of the Preparatory preschool program;

- Evaluation should be continuous on the basis of which action plans are to be designed in order to improve the program (its weak/strong points); in the evaluation process all actors should be involved - children, educators, professional services, parents, primary school teachers.

### Conflict of interests

Author declare no conflict of interest.

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# THE IMPORTANCE OF EDUCATIONAL TECHNOLOGY IN TEACHING

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Received: May, 14.2015.  
Accepted: June, 01.2015.  
Studies and articles  
UDK 371:004  
37.026

**Abstract.** Today, more than ever, the role of educational technology in teaching is of great importance because of the use of information and communication technologies. With the help of various applications for distance education, the Internet, teachers, and students themselves, they see the advantage of educational technology. The question is whether schools and teachers themselves are ready for the use of technology in education and whether they are aware of its benefits? In this paper, we try to give an overview of the importance and use of educational technology in the classroom.

**Keywords:** *Educational technology, Technology and learning, School, Teachers, The impact of technology on learning.*

## 1. INTRODUCTION

Educational technology is a systematic and organized process of applying modern technology to improve the quality of education (efficiency, optimal, true, etc.). It is a systematic way of conceptualizing the execution and evaluation of the educational process, i. e. learning and teaching and help with the application of modern educational teaching techniques. It includes instructional materials, methods and organization of work and relationships, i.e. the behavior of all participants in the educational process. The term “teaching resources” is commonly used, although they are not synonymous (Pedagoški leksikon, 1996). The word technology is derived from the Greek word “techno” which means the willingness, skills, knowledge of the way, rule, skill, tools and “logos” which means science, word, learning, mental state. There is no

single term for educational technology. Different countries use different terms and synonyms as educational technology, educational equipment, AV resources, the technology of teaching...

Terminological differences mostly occur on the grounds of the approach to the technical characteristics and the use of modern appliances, and not their actual application in teaching i.e. their actual pedagogical application. For this reason, there are different opinions among teachers in the field of social and technical sciences. Therefore, the application of educational technology requires knowledge from several areas: pedagogy, psychology, didactics, computer sciences, informatics... Because of this diversity, there are also different perceptions of educational technology, where every author defines the concept of educational technology, according to their needs. Educational technology is still not being applied sufficiently, mostly for reasons of lack of school equipment necessary resources and insufficient qualification of teachers for the implementation of these funds.

Educational technology has three domains of use:

- Technology as a tutor (computer gives instructions and guides the user),
- Technology as a teaching tool and
- Technology as a learning tool.

Depending on the use and benefits, the research by Lowther et al., (2012) suggests that education technology has not yet taken its place, in spite of their recommendations. This is probably the reason for the statute of the social company. Leu et al., (2009) state that children in poorer areas very rarely use the Internet as a learning tool. Today’s children use modern technical equipment from an early age (Gutnik et al., 2011; Rideout 2011) so that their coming in with new educational technologies at school will not be a problem.

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In studies (Greenhow et al., 2009), we can find out that more students use modern technical equipment. Serious research on the influence of education technology on cognitive processes was conducted by Kaufman, 2004; Lee et al., (2008).

When using educational technology we should be primarily focused on the educational value of the tools and applications we use, how adequate they are in the acquisition of knowledge, whether there is an interaction between users and tools, and if we have positive effects in using them. A number of authors (Clements and Sarama, 2003; Glaubke 2007; Dynarski et al. 2007) suggest that we should focus on five areas of software programs that have the potential to strongly influence children's learning experience:

1. The educational value of the program,
2. Its ability to engage children in learning,
3. Ease of use,
4. Interactivity between the child and programs,
5. The possibility that a software program monitors the progress of the child.

## 2. THE IMPORTANCE OF EDUCATIONAL TECHNOLOGY IN TEACHING

Since computers are still not widely used in many schools, the teaching process is dominated by traditional methods. It is dominated by the frontal form of work where the teacher had enough interaction with students. Failure to thrive at their own pace and insufficient activity of students was one of the drawbacks of this type of learning. In class, we have children who are not uniform in knowledge and never pay enough attention to those who are not sufficiently mastered the material and those who are above their average. This difference is often hampered by teacher assessment work and how to transfer knowledge to a group of children with different knowledge. The teacher chooses to keep average to good teaching where children with insufficient knowledge would not get the necessary knowledge. The children with insufficient knowledge can progress smoothly without unpleasant feeling of their ignorance, no frustration, and humiliation while for the most advanced children teaching will be boring.

With the development of information and communication technology, especially computers, a number of researchers (Morri-

son et al., 2010) were trying to see the benefits and the effect of their use compared to older traditional learning. For many years, we tried to give answers to the question of advantages and disadvantages between traditional and modern teaching where the prevailing educational technology. The period from 1967. to 1972. is considered to be a period of consolidation of educational technology, which has become the most commonly used term in the science of pedagogy and the educational process (Даниловић, 2004). With the application of educational technology, students can independently progress in mastering teaching materials, to choose the pace of work, to repeat the material that is not sufficiently clear, that after tests performed immediately get results and track their progress. Interactive, multimedia content provides a great advantage of modern learning over traditional learning. With the application of educational technology we get feedback between the teacher and the student.

Among the first studies on the comparison of the traditional and modern ways with the help of educational technologies research was Clark Richard (Clark, R. 1983). He tried to compare research between lectures and computer guidance and instruction to determine which the better way of learning is. He came to the conclusion that they are both effective depending on the ways they are used. The same conclusion came by other authors (Dynarski et al. 2007; Kulik, 2003) and that is that there are some major differences in the use of educational technology and traditional teaching. On the other hand, research at the Center for Educational Research in Pittsburgh within Individually Prescribed Instruction showed that computers are better tailored to the individual abilities of students, rather than teachers themselves. Educational technology must inevitably be integrated into classrooms and curricula (Clements and Sarama, 2003; Glaubke 2007; NAEYC and Fred Rogers Center, 2012). With the advent of educational technology in the classroom teacher, education is faced with the challenge that teachers integrate educational technology in their daily work. Numerous studies have shown that a small number of teachers is willing to integrate educational technology in their teaching activities (Becker, 2000; Hermans et al., 2008; Stošić and Stošić 2013; Wang et al., 2004). The reason is that there are two categories of teachers in the understanding of educational technology. Some of them have thorough understanding of modern technical appliances

and their operation while others think it is necessary for them to gain additional technical knowledge of the appliances and methods, teaching methods, student-teacher relationship... These two groups represent a group of teachers between older and younger teachers. Older teachers during their study did not have the possibility of training with modern technical appliances, did not have the information technology, educational technology... while the younger generation of teachers possess the knowledge required for the use of educational technology. For a better understanding of educational technology requires a set of computer science, pedagogy, psychology, cybernetics, informatics... The knowledge teachers possess is sufficient for a basic use of education technology. However, educational technology is one big system. First of all, teachers have a basic knowledge of the use of educational technology. It takes far more professional training through a variety of conferences, courses, professional literature, seminars... in order to get a better knowledge in the use of educational technology. The fact is that under use of educational technology, primarily due to poor school equipment necessary resources, insufficient information and knowledge of teachers and the lack of interest and lack of motivation of teachers to use them. Teachers have to be motivated to use the same because the use of educational technology in teaching provides better interaction with students, better reception of information because the students receive knowledge visual, auditory and kinesthetic way. Among other things, an educational technology motivates students to work independently where the student is more motivated to return to learning and working because modern technical equipment is widely available at any given moment.

### 3. CONCLUSION

The presence of educational technology is growing in the classroom. The new generation of kids come ready to work with these new technologies, which play an important role in children's learning and acquiring various cognitive knowledge so that educational technology must be incorporated into future curricula. The application of educational technology enhances skills and cognitive characteristics. With the help of new technology comes an explosion of learning and receiving new information, especially on mobile devices.

Teachers have been using new technol-

ogies in the classroom. However, the development and application of new technologies grows as a measure that is the question of whether teachers are trained to keep up with them. Here we have two problems. Are the teachers have the ability to use educational technology and whether the school is sufficiently equipped with all modern technical means? Numerous studies were carried out, some are still ongoing, but we have to find the right strategies to apply educational technology in teaching.

### Conflict of interests

Author declare no conflict of interest.

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## NEW METHODOLOGICAL THEORETIC APPROACHES TO THE ANALYSIS OF SPORT ACTIVITY

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Received: March, 18.2015.

Accepted: April, 14.2015.

Studies and articles

UDK 796.01

**Abstract.** Based on the views of representatives of domestic and Western philosophical thought (M. Merleau-Ponty, P. Bourdieu, N.A. Bernstein, E. Knyazeva), the author offers a nontraditional approach to the study of essence and nature of sports activity. The productive analysis of sports activity requires such techniques of intellectual procedures, which allow to consider sports activity not only as a physical sphere but also as a mental one, including cognitive, mental, psychomotor and emotional aspects.

**Keywords:** *Sports activities, Methodological theoretic approaches, Sportsman's body, Embodiment, bodily thinking, M. Merleau-Ponty, Habitus, P. Bourdieu, N. A. Bernstein, Living movement, Social facilitation.*

At the turn of XIX and XX centuries in the philosophy of science the necessity of revision of the basic positions of classical philosophical tradition has become increasingly recognized and, above all, the concepts of the completely independent, "transcendental subject of thought, devoid of any bodily, spatial, and temporal characteristics are being revised. Convinced of the uselessness of opposing of "bodily" to "spiritual", the philosophers have started searching for the "matter", "shapes" of thought that precede and prepare the acts of consciousness. So, in modern Western philosophy, especially in phenomenology and existentialism the concept of "corporeality" appears, removing the opposition between natural and artificial, mind and body, subject and object. The body in these philosophical concepts is not reduced to the object, and the soul to the subject; the body is replaced by embodiment and is understood as a self-governing system, meaningful and effective.

In recent years, Russian humanitarian science has had a number of interesting studies,

which, overcoming the dichotomy between social and biological in human nature, allow raising a new problem of body and spirit in the various manifestations of human culture.

The result of this research was the conclusion that the human bodily experience is the basis in which all acts of human consciousness are initially formed and organized, including the linguistic forms of expression and awareness (individual or communicative modes) and, therefore, all knowledge and existence of knowledge. The parameters and mechanisms of cultural existence depend largely on bodily organization, not only in terms of its material representation, but also at the level of the highest manifestations of the spirit. As E. Knyazeva noted: "the embodiment of consciousness does not mean denying the ideality of its products, but indicates the necessity of taking into account physical determinants of spiritual activity and cognition" (Knyazeva, E. N., 2008).

But while in the theoretical sphere the main vectors of understanding of the problem of interrelation of body and spirit have been introduced, the previous stereotypes continue to be evident in the sphere of practical implementation. According to J.-L. Nancy, the West is experiencing bodily catastrophe. In Western culture the body increasingly alienates from the subject. Modern Western culture has lost the original experience of the body, this experience remains the privilege of the "Third world". The West has to deal not with the whole body, and with the "flesh", "skin", "faces", "muscles". In other words, modern Western culture is dealing with bodily fragments, but not with the whole of the human body: "the flesh" is the property of cultivated sexuality, "skin" - the object of various kinds of cosmetic manipulation, "muscle" - the concern of bodybuilding.

The analysis of sporting activities allows going from the abstract, discursive knowledge

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of the body to the living somatic experience through a special way of an organized body movements. Sports activities are the type of human activity, in which the natural corporeality of man and his deliberate effort is most visibly and tangibly met to transform the embodiment in accordance with the social patterns that can be found in the current forms of physical culture.

The long development of sports practices have demonstrated their outstanding role in the formation of the human body. Every kind of sport has its own parameters: spatial-temporal characteristics, methods of application of energy and so on, which optimally should provide the required result. During many years of training an athlete's body takes the specific form of a gymnast, weightlifter, football player, swimmer, which becomes easily recognizable. Engaging in professional sport, the athlete literally "sculpts" his bodily form, therefore, his body is a focus of natural and cultural achievements.

It is known that modern professional sport requires long and hard workouts from the athlete. Effective execution of a motor action assumes that the athlete must reach a very specific type of relationship with the surrounding space using his body, it also suggests the completely new boundaries of his bodily existence.

The phenomenon of "probe" is widely known and described in psychological science. The meaning of this phenomenon lies in the fact that while feeling or touching this or that object, a person uses a probe that can make his feelings exist outside his body, in the world of external things. The probe would become a part and a natural extension of the man's body.

For us the most interesting phenomenon here is that many sports, as we know, presuppose using various kinds of sports equipment (for example, a ball in football, gymnastic ribbons, boards in windsurfing, etc), which being acquired by an athlete, become a kind of "probe". The athlete, who managed to adapt his body to the shape and properties of the object, gets the opportunity to enhance the potential of his body, its aesthetic appearance. "Qualified performer becomes the owner of new, more powerful abilities of perception - perception of their own movements and abilities... The whole experience, which he has due to his skill, differs in quality and size, unavailable for an unskilled performer and he understands and perceives aesthetically a lot of that quality experience" (Peter, 1997).

The well-mastered object ceases to exist as an external object, outside the athlete body, and it becomes his natural and necessary part. The German sports specialist H. Gumbrecht, exploring the causes of aesthetic appeal of sport, prioritizes the achievement of symbiosis between the man and sporting equipment.

The beauty of sports, according to H. Gumbrecht, is based on the feeling that sports equipment in some incomprehensible way fuses with the human body, becoming its harmonious continuation, especially in such sports equipment as cars, boats, weapons, or animals, when the athlete enters in almost "personal relationship with them".

H. Gumbrecht writes: "Any rider knows that the jockey who constantly uses the whip, will not achieve the same number of victories as a jockey, using his own movements to step the horse. In the last seconds of hard struggle the body of the rider, exactly bent over the horse's neck seems to be getting longer and longer, adjusting to the rhythm of the horse" (Gumbrecht, H. U., 2006).

The aesthetics of the athlete's body is manifested not only in a perfect shape (harmonious proportions of the skeleton plus the ideally beautiful body shape), but in the process of execution of motor actions. The aesthetic content of a sports movement is not always an end in itself, to a greater extent it lies in its appropriateness and usefulness for the final result: running is beautiful not because the athlete has a goal - to run beautifully. He runs beautifully because running is correct, he runs better than the others; the beauty of his movement is a sure indicator of its functional effectiveness. An expedient, economical, effective method or a style is usually the most beautiful. V. Kuts writes about the beauty of the combat and movements in Russian fist fights: "...beautiful performance is always faster and more accurate, and therefore always increases the probability of achieving the goal" (Kuts V., 2006). Therefore, beauty in the sport means high sports techniques and skills to achieve results that are superior to ordinary habitual norms, and therefore, fascinate anyone involved in a sports action. "Beauty is some excess, a joyful surprise" (Kuts V., 2006). However, as history of sports shows, success was achieved by those athletes whose physical parameters were far from perfect. The famous Brazilian footballer Garrincha, two-time world champion in the national team of his country, had one leg 6 cm shorter than the other one, but this did not prevent him from demonstrating the highest technique and

a truly beautiful game.

According to the researchers of creativity, it finds itself where there is no place for a standard, mechanical mode, where there is people's desire for perfection and victory over themselves. In sports there are a lot of opportunities for man's creative abilities, for going beyond the usual boundaries. Improvisational accuracy, instant guessing of the only correct decision in this ever-changing game situation, when conscious choice of options is simply impossible, no doubt, brings together the features of seeing, thinking, and motor responses in athletes with similar mental processes in art.

The search and application of new, innovative, original techniques and solutions is available in all sports. For example, in football the large size of the playing field, the absence of time restrictions on the ball possession, the ability to perform technical skills with any part of the body, except hands, etc. provide athletes with opportunities for choice and application of a variety of technical-tactical actions.

An acute sense of time and space is a key point for all sports, which manifests itself in a situation of absolute merge feeling of space and momentum to the movement.

The density and the hostility of the outside world is determined for the athlete by the oppositions: predictability - unpredictability, transparency – non-transparency, development – non-development, which is specified and calculated in the course of an infinite number of workouts. As a result, the external world, which is becoming "his" world, begins to lose its density, as if dissolving into the subject. Designed and developed so the world of external things gradually begins to disappear, the athlete ceases to notice it, for example, to hear and to feel the elasticity and density of water, ice, gravity and density of his own body, etc.

The clear criterion for the development of space and its elements is in itself his "disappearance", now the athlete begins to interact with it without facing any difficulties, almost without noticing it. So, as well as the development of language, one learns to use it quite unconsciously, finding it difficult even to reflect grammatical rules. The language, which he has mastered turns out to be "swallowed", and there are difficulties that a man sometimes faces, the essence of the difficulty is not how to speak, but what to say.

Very special experience, familiar to every professional athlete is described in sports pedagogical literature. These are such complex feelings as "feeling of water" "for

swimmers, "a sense of the boat progress – for rowers, "the feeling of the ball - for footballers (basketballers, volleyballers and so on), "apparatus feeling" – for gymnasts. Only in case if an athlete has this kind of "feelings" and the possibility to rely on them in the process of solving motor tasks, sports victories and records are possible.

This means that hard exercising has led to a change in the "body scheme" in the sense that the external environment in its current subject state was perceived by the athlete "internally", as a continuation of his body.. Thus, the objective world ceases to be external space, which is forcedly overcome, specially submitted by the athlete; the athlete and the environment is now, in fact, are in a state of cooperation, they complement each other, creating the impression of a harmonic blend. The environment is not acting as something alien, hostile, it becomes such a reality that already "implies" the athlete and needs him. N. A. Bernstein, describing the living movement, wrote: "The most significant feature that distinguishes the living movement from the mechanistic one, is that it represents not only the movement of the body in space and time but also the mastery of space and time, i.e. it has the features of an active chronotope" (Bernstein, N. A., 1966).

Recognizing the physicality decisive role, M. Merleau-Ponty believes that there are bodily threads that control the mind and establish our design method and understanding of the world. M. Merleau-Ponty introduced the concept of "body scheme" or "body pattern" that define and limit the possibilities of consciousness. "Body schemes" are a special kind of a life style, which organizes the movement of my body and determines its interaction with the surrounding world. What is a burden of the sick person? Following M. Merleau-Ponty, the answer might be the following: not so much physical sufferings, but the necessity to get rid of the traditional way of life, to restrict activities and circles of interaction with other people.

Or, as M. Merleau-Ponty says, to change "a global pattern of your body", i.e. to change your life style for some time or forever. For example, a headache is not just a pain in the head, but the cancellation of the planned work, the inability to read a book, to watch a movie. The disease is not seen as a disruption of a biological body, but as the collapse of the living space, which is out of person's control and which immerses people into the new, and therefore alien world.

When professional athletes finish their career, they are faced with the necessity to change the body boundaries. It is clear that the parameters of the life of athletes define serious bodily trials and loads, and are accompanied by vivid emotional experiences. In the new post-sport life situations it is very difficult for an athlete to reproduce his previously familiar life style. Hereafter his life-world is significantly different from the past, both in terms of physical and mental stress and vital and meaningful moments. A former athlete finds himself in the position in which he is devoid of usual reference points, familiar surroundings, and he faces a problem of revolutionizing his body pattern, and, in the end, the reconstruction of the entire world. This “work” on requiring a new “feeling body” is extremely difficult and problematic due to the fact that, for obvious reasons, the feeling of the athlete’s body is a paramount value.

For the purposes of the study of the cognitive nature of the sports activity the concept of Bourdieu “habitus” is of great interest. In the philosophical tradition habitus is the mixture of the individual bodily skills - gait, gestures, manners, which are a reflection of a person’s individual experience. The habitus is generated by social and natural environment through its interiorization by a man and it is the expression of his social life trajectories. Bourdieu associates habitus with a lifestyle, which in ensemble combines mental and physical preferences of the man when he chooses a certain scheme of personal practices, perception and evaluation of events, a set of lexical resources for communication.

The main feature of habitus is that it is an unconscious structure: these are the systems of deeply rooted preferences of individuals, which are neglected and therefore not reflexive: “Habitus is a story that has become nature, and thereby it denies being such” (Shmatko N. A., 1998).

Unconsciousness of habitus is defined by its physicality; installation and preferences (or “dispositions” by Bourdieu) are inscribed in the body and manifest themselves in an individual behavior, style and the habit to choose one or the other scenario of communication, to talk, to behave and to move.

According to the experts in the field of physical culture, the range of sports over recent decades has expanded to more than 240 disciplines through such informal sports like skydiving, freeclimbing, paragliding, rafting, windsurfing, etc. “The extreme complexity of the dynamic relationship between the body of

the athlete, technical equipment (sails, boards, parachute) and natural elements (water, wind or impassable routes) represent a really serious challenge to the person corresponding to the values of the XXI century” (Dant T. and Wheaton B. Windsurfing, 2007).

What is common between all of these sports? It is the involvement of a person interacting with the complicated technical equipment in a masterly movement in space, for whom the perception of speed and control over all elements of this process is the essence of competitive activity. At the highest level all of these sports require very high “investments in physical capital”. To become a participant in such a competition, the athlete must learn to achieve “virtual intuitive” control over the interaction of complex technical equipment, its physicality and natural environment: this should happen unconsciously, so that the equipment becomes “prosthetic continuation of the human body”, and the wind force or the wave length – his additional reserves (Dant T. and Wheaton B. Windsurfing, 2007).

Ever-expanding range of new sports which stir the imagination with their complexity opens new possibilities of the human body and leads to the problematic nature of the concept of “biological norm”. As K. Paciello noted: “And athletic, and “adventure” sports have become a kind of laboratory where the endless expansion of possibilities of the human body in every conceivable way is globally demonstrated” (Paciello K., 2006).

Greatest moments in sports are not the exclusive property of not only those who create them; but also of spectators who watch and enjoy physical superiority of the man. In this regard, the athlete is similar to the actor, he is also interested in “finding a contact” with the audience, to get their support, to feel their emotions.

Powerful competitive motive inherent in the very nature of sports activities makes the sportsman find hidden resources in his body, initiates the operation of the athlete to master the new techniques and methods, which is also manifested in the effect of “social facilitation”. Social facilitation - a socio - psychological phenomenon of increasing the activity efficiency when it’s done either in the presence of other people, or in a situation of competition. First social facilitation was observed and described in the late nineteenth century (V. M. Bechterev, L. Lange, F. H. Allport and others). One of the manifestations of social facilitation was the situation described by researchers on the cycling track. Cycling track was arranged

in such a way that the audience members were located only on one side of the track. It turned out that regardless of the coach's tactical plans just before the stands with spectators athletes committed involuntary acceleration and tried to show their best results.

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## CONCLUSIONS

So, it's not possible to adequately describe sports activity just within the framework of traditional approaches to the description of physical culture. There is a need to introduce new methodological theoretic bases of the sports activity analysis, which will take into consideration the inseparability of the psychic and the physiological, the mental and the bodily, feeling and action. The works of M. Merleau-Ponty, P. Bourdieu, N. A. Bernstein, E. Knyazeva offer conceptual provisions of the theory of "bodily thinking", which can become a new research strategy of the sports activity study. They will make it possible to understand the anthropological nature of sport and make a transfer from abstract, discursive knowledge about man's body to living somatic experience, including all cognitive sphere.

### Conflict of interests

Author declare no conflict of interest.

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