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## EDITOR`S NOTE

Education throughout the world faces challenges such as economic, technological, social, and personal. In order to efficiently prepare for fast changes in society and work environment, education should provide necessary knowledge and practical skills for students .This requires a fundamental rethinking of educational systems.

The volume on „**EDUCATION**“ contains, availability of differing expert views on the same theme. The importance of this volume is that it addresses the major pedagogical , economic and social aspects of education. The book also analyzes the different models and types of education . A number of papers dealing with education in the areas of entrepreneurship , including the best-practice methods of learning and teaching entrepreneurship. In addition, the book provides insights into the effect of policies and institutions on education, and the role of active government support. A common thread is that institutional reform may only be necessary but not sufficient for education development. A systematic action is also necessary against corruption in education .Corruption in education is not a problem tormenting Serbia alone, because it is a global issue. It has a negative impact on the quality of higher education and other services. Some forms of corruption are region-specific while others are universal. In line with this, the types of corruption are connected to the characteristics of the national systems .However, it is common for all countries with corruption in education that it adversely affects the ‘knowledge economy’.Besides corruption in education , the book discusses the relationship between higher education and regional development, including the role of universities in innovation.In addition, a number of papers are devoted to the role of education as a driver of employment and economic development.

Although, this topic can be approached from different angles, they all contribute to the knowledge in the field of education as a whole with its weaknesses and strengths. However, overcoming the weaknesses takes time.Namely,progress requires a willingness to think in new ways about educational goals through the process of its transformation.

My hope is that this book can call attention to those who are responsible for the education improvement and adjustment to the demands of modern times. Therefore,the book is strongly recommended for all the scholars, teachers and experts in the field of education and it is one of those “must reads”.

December, 2012.

Belgrade, Serbia

*Editor in Chief*

*Professor Mirjana Radovic-Markovic PhD,  
academician of EA, WAAS, EMAAS, SKANU.*

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THE FIRST INTERNATIONAL CONFERENCE  
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***PART ONE***  
***TECHNOLOGIES IMPLEMENTATION IN***  
***EDUCATION***





# ***E-LEARNING IN BUSINESS AND ENTREPRENEURSHIP: AN EVIDENCE OF SERBIA, IRAN AND INDIA***

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## ***Abstract***

*By the advent of Internet, new techniques and approaches emerged in the world of learning. Universities and educational institutions began to take advantage of the benefits associated with this new phenomenon. In this way, learning became a new experience for those who were not able to attend in the classrooms and afford its expenses. Learning in a new environment with its unique characteristics makes learning an exciting process, for both students and teachers. The focus of this paper is on students of business and entrepreneurship, as the agents. Then, we investigate the e-learning status in three main countries, i.e. Serbia, Iran, and India. In order to gather the required data, an online questionnaire was designed and randomly sent to the respondents in different countries, who were studying business or entrepreneurship. The results reveal that there is a growing tendency to e-learning opportunities in different countries. Moreover, based on the data gathered from all around the world, it could be inferred that both entrepreneurial intention and program selection have positive effect on success in an entrepreneurial career. The positive effect of entrepreneurial intention on success in an entrepreneurial career was approved in all countries of our study; but the effect of program selection was not meaningful.*

***Keywords:*** *E-learning, Entrepreneurship, Agent-based Approach, Developing Countries*

## ***INTRODUCTION***

The history of education is full of dramatic changes, among which e-learning is considered as a critical paradigm shift. Delivery of knowledge and accessibility of information are dramatically changing due to the growing rate of improvements in internet and multimedia technologies (Zhang et al., 2004). Moreover, e-learning content is different from other materials, as it lets all agents play their role in a more interactive and exciting manner. Today, students and teachers feel free to tag, store, move, and even interact with their learning content (Harris, 2005). In this regard, paying enough attention to what makes this new experience more interesting for beneficiaries is a critical issue to be investigated.

Agent based approach offers many advantages in comparison with other approaches. Here, we take students as the agents who might /might not intend to attend such courses. To narrow down the research topic, we will examine the propensity to attend and select such courses, and its effect on their success in an entrepreneurial career in students of business and entrepreneurship in three developing countries, i.e. Serbia, Iran, and India. In this paper, the authors firstly go through the theoretical background. Then, we propose our research methodology and elaborate the methodological concerns, and the findings will be discussed. Finally, the paper concludes with some major findings, limitations, and future directions for research.

## ***THEORETICAL BACKGROUND***

According to recent research (Liarokapis 2010), the introduction of virtual environments into higher education has the potential to bring a positive change in the learning experience. Namely, the online learning environment is quite different from a traditional classroom. In other words, online courses require participants to take on new and different teaching/ learning behaviors. What makes e-learning content different from other educational materials is that it can be disassembled as individual learning objects, tagged, and stored for reuse in a variety of different learning contexts (Harris, 2005). Recent research has also compared online learning to face-to-face learning (Hoben et al. 2002), explored the effectiveness of online tools such as discussion boards and chat rooms (Spatariu et al. 2004), addressed evaluating effective online instruction (Graham et al. 2001; Wentling and Johnson 1999), and assessed the value of online courses in specific fields of study (McCombs 2000). In particular, the use of virtual worlds to reach remote, distance, and online learners is creating new opportunities for face-to face engagement and motivation with difficult-to-reach groups.

Draves (2002) provides a list of reasons why he believes the Internet enhances learning, including such advantages as being able to learn at a peak time of the day,

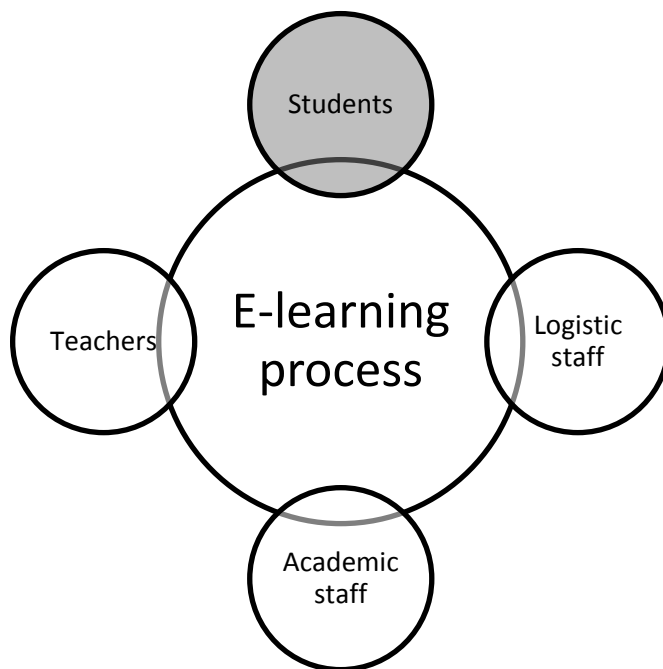
learning at your own speed, accessibility to much information, an ability to track personal progress, and the capability to test personal learning efforts. In addition, the e-learning students were in an environment where professors respond to their needs on demand (Radovic Markovic 2007). However, most learning environments neglect the learning services and pedagogy aspects of e-teaching. Hence, its development has lagged behind the massive investment in hardware and teacher training in using ICT (Newton & Rogers, 2001). According to some researchers, e-learning pedagogy should incorporate the form of learning pedagogy but goes beyond it to include a deeper study into the incorporation of instructional strategies that take into account of real-time personalized learning content-to-learner adaptability (Teo et. al. 2005).

For years, e-learning systems used to rely on traditional ones, and followed the footsteps of the previous learning approaches. But, nowadays, e-learning systems mostly focus on personalization, and the relations between the individuals in a larger community (Hung, 2001; Ip & Naidu, 2001). In this way, agents' role became more significant, as a series of agents proposed by several authors (Al-Sakran, 2006). For instance, pedagogical agents (Johnson & Shaw, 1997; Selker & Coach, 1994), teaching agents (Marin & Hunger, 2004), agents for retrieval (Hiltz & Wellman, 1997), and agent infrastructure (Holt et al., 2001) are among the agents mentioned in the literature. Indeed, the agent approach is more efficient in analyzing the impact of different decisions in various scenarios by considering different actions. "Agent-based systems, with their autonomy, proactivity, reactivity, sociality, collaboration and intelligence, when coupled with educational applications, can result in personalized learning systems" (Obonyo, 2011).

A lot of research has been done focusing on adoption of intelligent agents to integrate e-learning systems and support e-learning pedagogy. Literature in the areas of intelligent tutoring systems, virtual mentors, and adaptive hypermedia has produced techniques and tools that can provide improved learning outcomes (Brusilovsky, 2000; Melis et al., 2006). Therefore, the intelligent agents are one of the most useful tools with various functionalities and usages in e-learning. Namely, intelligent agents have received considerable attention by scientists over the last decade because of their great potential for addressing the limitations of current e-learning systems by supporting learning processes. They target and deliver just-in-time learning materials required by the individual learners (Gregg 2007). According to Gregg's opinion software agents can be used to support instructors and domain experts with course design and delivery as well as individual learners by personalizing course materials based on learning objectives. In addition, the intelligent agents provide pro-active resource discovery, and offers value-added information services and products (Chou & Seng, 2009).

In a nutshell, we could argue that the e-learning paradigms and techniques cover a wide range of the literature. However, the literature investigates this area from different points of view, such as teacher centered and students centered learning, investigating the topic based on an agent based approach could be more fruitful. In this paper, the authors emphasize on the students as the most important agents of e-learning process. The following figure shows the most important agents in a typical e-learning process. It should be mentioned that, here, by "agents" we mean human agents, and not other kinds of agents.

*Figure 1. Human agents in a typical e-learning process*

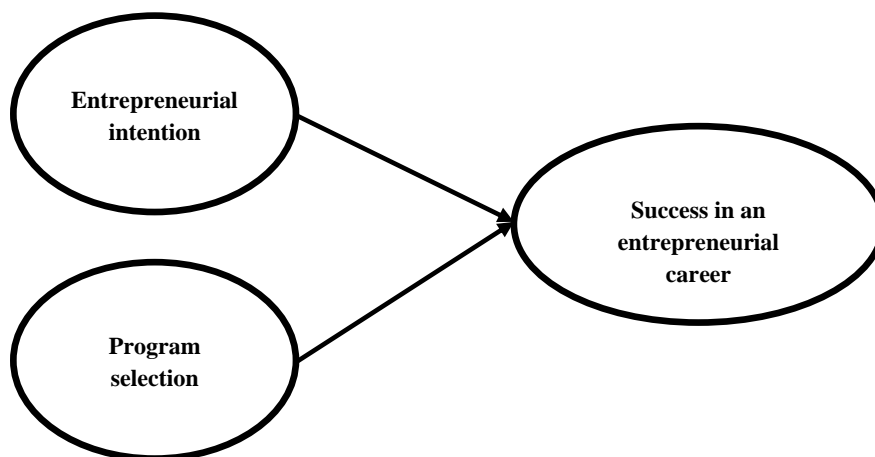


*Source: Authors*

## **METHODOLOGY**

In this study, the authors used a quantitative research design in order to gather the required data. The main idea of the research concentrates on the e-learning status of students of business and entrepreneurship in three main countries, i.e. Serbia, Iran, Turkey, and India. In order to gather the required data, an online questionnaire was designed and randomly sent to the respondents in different countries, through the Internet. Afterwards, the authors used SPSS to analyze the data. In total, 126 questionnaires were gathered from the mentioned countries. The following research model is used to evaluate the students as one of the most important agents of a typical e-learning process.



*Figure 2. Research model*

*Source: Authors*

## **DISCUSSION**

According to the outputs of a curve estimation, following tables and figures are presented. Authors separately discuss the results of the curve estimations for Intention-Success, and Selection-Success.

*Table 1. Curve estimation for Intention-Success*

Model Name	Intention-Success	
Dependent Variable	1	Success
Equation	1	Linear
	2	Logarithmic
	3	Quadratic
Independent Variable	Intention	
Constant	Included	
Variable Whose Values Label Observations in Plots	Unspecified	
Tolerance for Entering Terms in Equations	.0001	

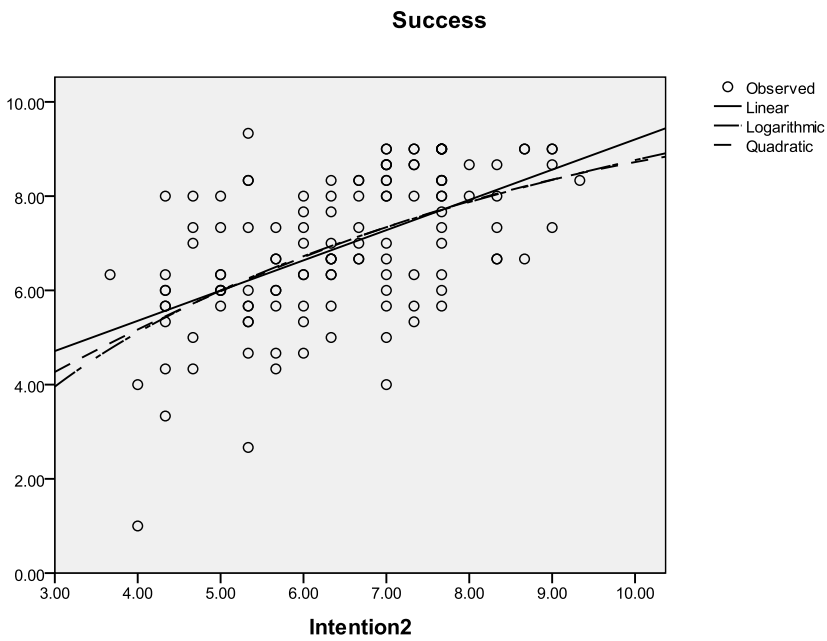
*Source: Authors*

**Table 2. Model Summary and Parameter Estimates for Intention-Success**

Dependent Variable: Success								
Equation	Model Summary					Parameter Estimates		
	R Square	F	df1	df2	Sig.	Constant	b1	b2
Linear	.303	53.865	1	124	.000	2.788	.642	
Logarithmic	.306	<b>54.638</b>	1	124	.000	-.431	3.994	
Quadratic	.306	27.095	2	123	.000	1.039	1.209	-.044
The independent variable is Intention.								

Source: Authors

**Figure 3. Curve estimation for Intention-Success**



Source: Authors

**Table 3.** Curve estimation for Selection-Success

Model Name		Selection-Success
Dependent Variable	1	Success
Equation	1	Linear
	2	Logarithmic
	3	Quadratic
Independent Variable		Selection
Constant		Included
Variable Whose Values Label Observations in Plots		Unspecified
Tolerance for Entering Terms in Equations		.0001

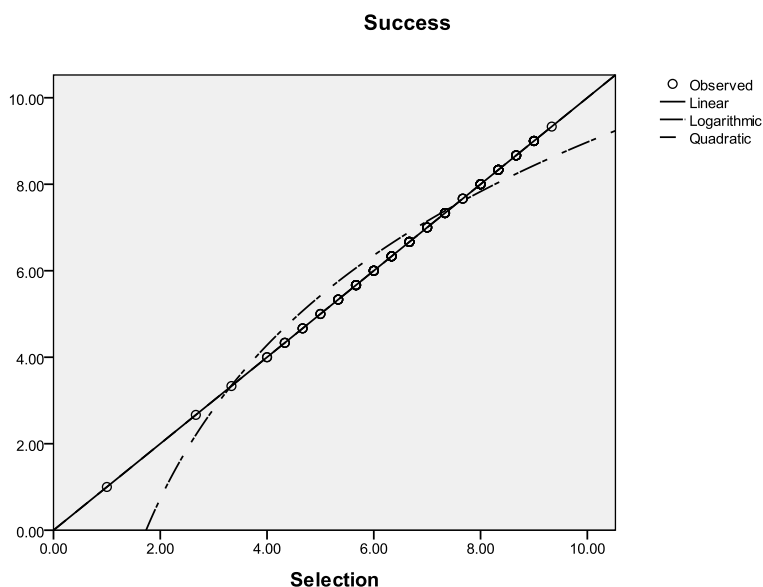
Source: Authors

**Table 4.** Model Summary and Parameter Estimates for Selection-Success

Dependent Variable: Success								
Equation	Model Summary					Parameter Estimates		
	R Square	F	df1	df2	Sig.	Constant	b1	b2
Linear	1.000	.	1	124	.	.000	1.000	
Logarithmic	.902	<b>1134.929</b>	1	124	.000	-2.822	5.123	
Quadratic	1.000	.	1	124	.	.000	1.000	.000
The independent variable is Selection.								

Source: Authors

**Figure 4.** Curve estimation for Selection-Success



*Source: Authors*

In both cases, curve estimation shows that logarithmic estimation best fits as the F value is greater ( $F=1134.929$ ) than other estimations, and also is significant. In order to discuss the results of our study, we review the e-learning status in each of the cases briefly. Afterwards, the results of our study are presented to elaborate the topic.

### ***Business and Entrepreneurship E-learning in Serbia***

Serbia does not have extensive experience deploying online studies and virtual faculties. Forming an international learning network may enhance e-learning opportunities in Serbia as well as in countries that are developing or in transition (Radovic Markovic, 2007) Because the functionality of the technologies and the benefits of virtual learning to learners and professors have been misunderstood, the entrepreneurial process although improved in Serbia has been impacted due to the lack of awareness (Radovic Markovic, 2007a).

As Radovic Markovic and Bodroski Spariosu (2010) mention in their study, Serbia does not have broad experience deploying online education and virtual faculties. Forming an international learning network may enhance e-learning

opportunities in Serbia as well as in countries that are developing or in transition. Due to the functionality of the technologies and the benefits of e-learning to students and teachers have been misunderstood, the entrepreneurial process although improved in Serbia has been impacted because of the lack of enough awareness (Radovic Markovic, 2007). An aggravating factor for faster development of Internet studies lies in the fact that the internet education in Serbia has a low level of interest among students. Furthermore, most of the students cannot imagine "classroom without walls", as well as quite a different way of learning (Radovic Markovic, 2012). If Serbians or citizens of other nations become more familiar with the techniques, potential learners as well as educators may be able to effectively discern the pros and cons of how e-learning would enhance and improve education (Radovic Markovic and Bodroski Spariosu, 2010). Hopefully, recently a number of studies have been done in Serbia in order to investigate the different aspects of e-learning, especially in the field of business and entrepreneurship (e.g. see, Radovic Markovic, 2007; Radovic Markovic et al., 2009; Radovic Markovic and Bodroski Spariosu, 2010). Building a more inclusive distance learning environment in Serbia involves making technological choices built on flexibility and an ability to respond quickly to changes in constantly evolving technology and informational resources. Collaboration, involving teachers, mentors, and instructional designers who truly represent hard to reach learners, and a willingness to invest monies in developing a cyber-infrastructure that reaches all learners regardless of where they live will be crucial (Radovic-Markovic, M.2009a).

As it is illustrated in the following tables and figures, intention has a positive meaningful impact on success. As F value is greater in the linear model, this model best fits in our case. But, the results for the impact of selection are not presented as there were no significant results.

**Table 5.** Curve estimation for Intention-Success in Serbia

Model Name	Intention-Success in Serbia	
Dependent Variable	1	DSERBIASUCCESS
Equation	1	Linear
	2	Logarithmic
	3	Quadratic
Independent Variable	DSERBIAINTENTION	
Constant	Included	
Variable Whose Values Label Observations in Plots	Unspecified	
Tolerance for Entering Terms in Equations	.0001	

*Source: Authors*

**Table 6. Model Summary and Parameter Estimates for Intention-Success in Serbia**

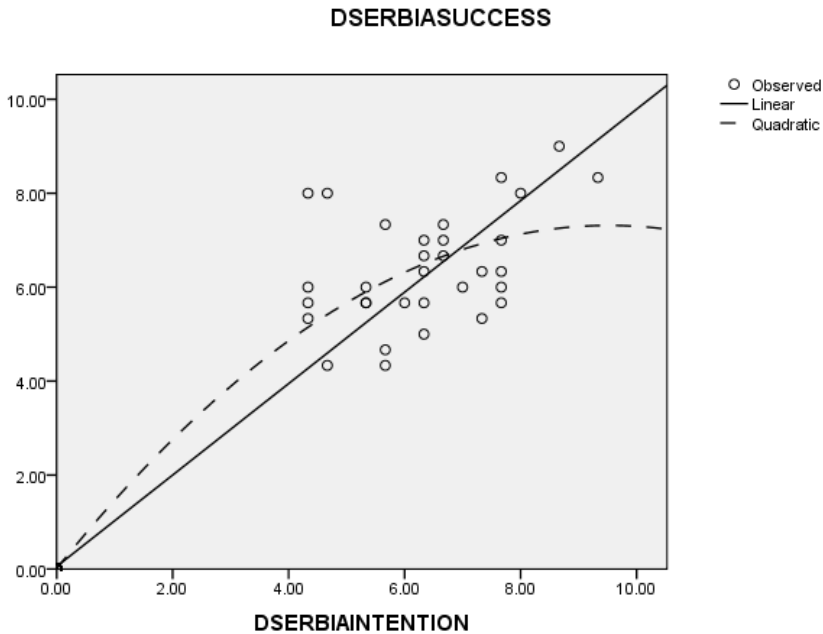
Dependent Variable:DSERBIASUCCESS								
Equation	Model Summary					Parameter Estimates		
	R Square	F	df1	df2	Sig.	Constant	b1	b2
Linear	.945	<b>2148.687</b>	1	124	.000	.053	.973	
Logarithmic <sup>a</sup>	.	.	.	.	.	.000	.000	
Quadratic	.959	1445.248	2	123	.000	.010	1.534	-.081

The independent variable is DSERBIAINTENTION.

a. The independent variable (DSERBIAINTENTION) contains non-positive values. The minimum value is .00. The Logarithmic and Power models cannot be calculated.

Source: Authors

**Figure 5. Curve estimation for Intention-Success in Serbia**



Source: Authors

## ***Business and Entrepreneurship E-Learning in Iran***

Based on the findings of Powell and Patrick (2006), virtual education in Iran is delivered by both private sector and governmental organizations. The Ministry of Education (MOE) administers e-Learning under three main areas: purchasing software for teacher professional development in order to create online content, administration of the country's four Intelligent Schools (distance learning schools which deliver both content online and on compact disc), and to make a network to connect all schools. In the private sector of e-Learning, several companies provide online courses in geography, English, and software for high school students, as well as completion certificates which are approved by the MOE. Students from the urban areas and large schools are participating in online courses. E-Learning in Iran is entirely based on a blended model of learning. Programs and courses are developed by the government and are free of charge for the students. The government has been working to create education standards, but they have not yet been published. There are presently no entirely online courses in the country; however, a private company is developing independent courses for first year high school students, which the students themselves will pay to enroll.

During the past five years, the government has been working to train and familiarize teachers with the development of electronic content and online courses. Several teachers now have these skills and are using them with the computers and Internet in their classrooms. Teachers are developing the online content, but the majority of it is still created and sold to schools by private companies. Several teachers in Iran are also collaborating with other teachers from all over the world in online projects sponsored by iEARN and ENO. At the university level, Iran is working with Italy, Germany, and the United Kingdom to develop online courses. Because the technology is so new, people are scared of it. The government is worried about the lack of enough filtering of the Internet. Funding is also an obstacle for the growth of online learning. Although there are several obstacles facing Iran in the area of e-Learning, they have still managed to educate students and teachers on the importance of it. Over 20,000 students have participated in some format of e-Learning in Iran (Powell and Patrick, 2006).

As JafariMoghadam et al., (2012) argue: Iranian universities are experiencing the second stage of higher education and in some cases are approaching the third stage. Moreover, entrepreneurship is one of the most attractive disciplines in Iran. Entrepreneurship education has a long history in the world, but it has existed for less than one decade in Iran. Therefore, entrepreneurship education is a newer field in this country. UT, as a pioneer university in Iran, launched entrepreneurship programs at master level in its Faculty of Entrepreneurship in 2005. Increasing demand for entrepreneurship education in Iran, especially from entrepreneurs, governmental managers and the private sector, who cannot leave their job on one hand and the growth of information technology in higher education in Iran on the other hand, has made the UT offer virtual learning as a new way for delivering entrepreneurship

education. Before entrepreneurship, the University suggested two programs for virtual learning which were appreciated by students. This experience has led to applying e-learning technology to entrepreneurship education. However, it is important to determine if e-learning technologies are appropriate for entrepreneurship education. This program attracted many postgraduate students in Iran. The main concern is "what are the challenges of this type of education in the field of entrepreneurship?" The entrepreneurship education in Iran has been accompanied by virtual systems and movements toward the third stage of higher education.

As it is illustrated in the following tables and figures, intention has a positive meaningful impact on success. As F value is greater in the linear model, this model best fits in our case. But, the results for the impact of selection are not presented as there were no significant results.

**Table 7.** Curve estimation for Intention-Success in Iran

Model Name		Intention-Success in Iran
Dependent Variable	1	DIRANSUCCESS
Equation	1	Linear
	2	Logarithmic
	3	Quadratic
Independent Variable		DIRANINTENTION
Constant		Included
Variable Whose Values Label Observations in Plots		Unspecified
Tolerance for Entering Terms in Equations		.0001

*Source: Authors*

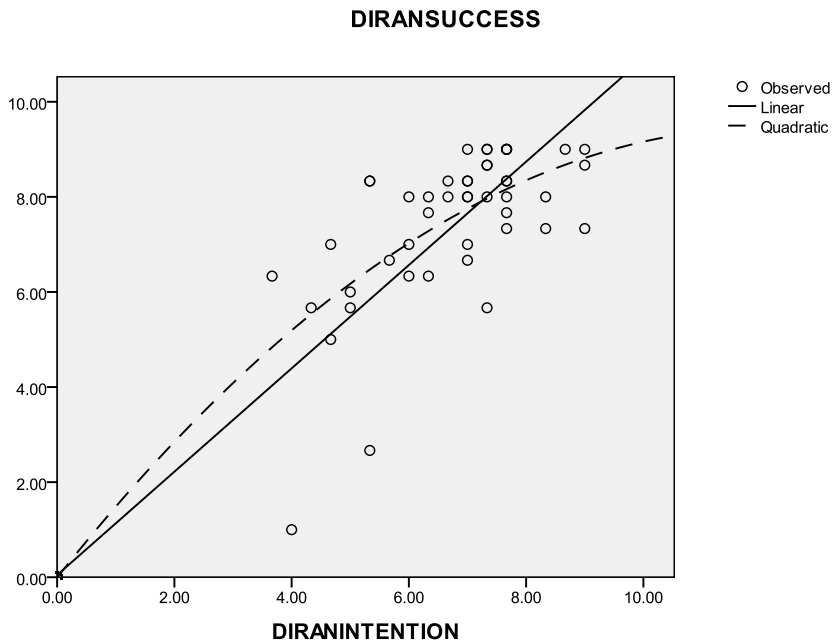
**Table 8.** Model Summary and Parameter Estimates for Intention-Success in Iran

Dependent Variable:DIRANSUCCESS								
Equation	Model Summary					Parameter Estimates		
	R Square	F	df1	df2	Sig.	Constant	b1	b2
Linear	.955	<b>2617.189</b>	1	124	.000	.046	1.087	
Logarithmic <sup>a</sup>	.	.	.	.	.	.000	.000	
Quadratic	.961	1532.639	2	123	.000	-.007	1.555	-.064
The independent variable is DIRANINTENTION.								

a. The independent variable (DIRANINTENTION) contains non-positive values. The minimum value is .00. The Logarithmic and Power models cannot be calculated.

*Source: Authors*



**Figure 6.** Curve estimation for Intention-Success in Iran

*Source: Authors*

### ***Business and Entrepreneurship E-learning in India***

Based on the evidences provided by Varma (2009), the E-learning Outsourcing industry in India is expected to achieve revenue growth by \$603 million by the end of 2012. The Compound Annual Growth Rate (CAGR) is expected at 15 percent per annum, which might also waver till 2010 due to the global economic recession. A report published by a business intelligence and service provider firm ValueNotes 'entitled e-learning Outsourcing 2009: Advantage India' reveals that the growth rate of the e-learning industry will be slow for coming 6-8 quarters, but will attain its pace by then. The e-learning industry earned a profit around \$341 million in the year 2008. The aspects of the industry are growing as 50 percent of the industry growth comes from the small scale companies. In 2002, the profit earned by the industry was around \$6 billion, which went up to about \$20 billion in the year 2008. The industry has spread widely throughout the country, with many companies and NGO's taking active part in it. One such organization, Smile, claims to place 70 percent of its students in the year 2009, through its Twin e-Learning Programme (STeP).

Self paced e-learning allows the students to pursue their choice of courses along with their jobs. And by the concept of e-learning, around 3 lakh students are planning to take part in the CAT 2009. Prestigious institutions like Indian Institute of Management (IIM), Indian Institute of Technology (IIT) and Indian Institute of Foreign Trade (IIFT) are actively adopting e-learning courses. The current economic slowdown has affected the e-learning institutions in the country, but NGO like Smile Foundation are confident enough to meet the ongoing challenges and are planning to come out successfully. "We started the e-learning program two and half years back and now have over 5000 students in 50 centers. We have our blue print ready for further expansion to 100 more centers, and it will happen as soon as we get the funding from our national and international sources", said Naresh Choudhary, COO, Smile Foundation. However, companies like Hyderabad based Swingwind Technologies which mainly concentrates on the schools and colleges feels the heat. "A couple of deals which we have got through, are now being postponed but once the economy bounces the deals will come back. So it is just a time thing. We will have to wait," said the Founder Prasanth R. Marreddy. The greatest challenge faced by the players in the industry is the acceptance of the concept of e-learning amongst the people as they do not understand the value of the software for learning purposes. Still founders and heads of most e-learning companies in India are confident about the growth and the huge profits that lie in the coming years (Varma, 2009).

As it is illustrated in the following tables and figures, intention has a positive meaningful impact on success. As F value is greater in the linear model, this model best fits in our case. But, the results for the impact of selection are not presented as there were no significant results.

**Table 9.** Curve estimation for Intention-Success in India

Model Name		Intention-Success in India Model Description
Dependent Variable	1	DINDIASUCCESS
Equation	1	Linear
	2	Logarithmic
	3	Quadratic
Independent Variable		DINDIAINTENTION
Constant		Included
Variable Whose Values Label Observations in Plots		Unspecified
Tolerance for Entering Terms in Equations		.0001

*Source: Authors*

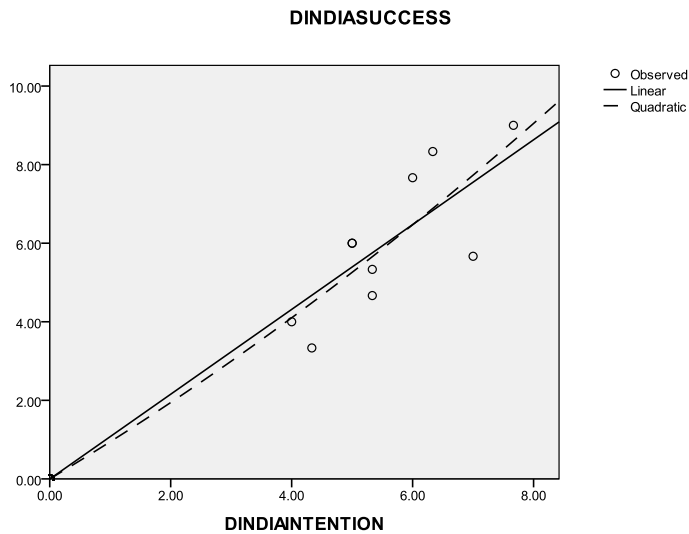
**Table 8.** Model Summary and Parameter Estimates for Intention-Success in India

Dependent Variable:DINDIASUCCESS								
Equation	Model Summary					Parameter Estimates		
	R Square	F	df1	df2	Sig.	Constant	b1	b2
Linear	.968	<b>3696.367</b>	1	124	.000	-.004	1.079	
Logarithmic <sup>a</sup>	.	.	.	.	.	.000	.000	
Quadratic	.968	1880.292	2	123	.000	.000	.920	.026

The independent variable is DINDIAINTENTION.

a. The independent variable (DINDIAINTENTION) contains non-positive values. The minimum value is .00. The Logarithmic and Power models cannot be calculated.

Source: Authors

**Figure 6.** Curve estimation for Intention-Success in India

Source: Authors

## ***CONCLUSION***

As mentioned earlier, agent based approach offers many advantages in comparison with other approaches in studying the behavior of each agent separately. Here, we took students as the agents who might /might not intend to attend in such courses. To narrow down the research topic, we examined the propensity to attend and select such courses, and its effect on their success in an entrepreneurial career in students of business and entrepreneurship in three developing countries, i.e. Serbia, Iran, and India. In this paper, the authors firstly went through the theoretical background. Then, we proposed our research methodology and elaborated the methodological concerns, and the findings will be discussed. The results revealed that there is a growing tendency to e-learning opportunities in different countries. Moreover, based on the data gathered from all around the world, one might conclude that both entrepreneurial intention and program selection have positive effect on success in an entrepreneurial career. The positive effect of entrepreneurial intention on success in an entrepreneurial career was approved in all countries of our study; but the effect of program selection was not meaningful. Future researchers are invited to concentrate on other aspects of the e-learning and also it is suggested to investigate other agents of a typical e-learning process. During this research we faced a series of limitations, the most important among which were: to access students in different countries, to gather the required data in a systematic manner, etc.

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# **FOSTERING ENTREPRENEURSHIP IN HIGHER EDUCATION THROUGH E-LEARNING: A CASE STUDY OF SERBIA AND TURKEY**

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## **Abstract**

*The main objective of this study was to determine to what extent the students in the two Balkan countries are interested in starting their own business after graduating from institutions of higher education in the field of economic and business orientation. Of key importance is exploring the opinion of students whether it is necessary the formal education to foster entrepreneurial skills through online programs in entrepreneurship. In addition, we wanted to determine the extent to which students are generally interested in e-learning and what they expect from that kind of education. In view of these and similar questions, we tried to do an analysis and compare the results of research on Turkey and Serbia. Our questionnaire contained eight questions to which the answers are provided by 100 participants from Turkey and 98 from Serbia. The two countries have taken for our study because they belong to Balkans region and therefore have certain characteristics that distinguish the region. Although there are some specific features of the region, the results showed significant differences between the two analyzed countries. Explanations can be found in the social, cultural, economic and other characteristics of Turkey and Serbia.*

***Keywords:*** *Entrepreneurship, e-learning, Serbia, Turkey*

## ***INTRODUCTION***

The business environment for the development of entrepreneurial activities is not enough incentive, both in Serbia and in Turkey. It could be considered common for the both countries. Namely, it is very difficult to carry out entrepreneurial activities in mentioned Balkan countries. The reason lies in the numerous obstacles and limitations, operating extremely discouraging to achieve these expectations of SMEs. The first line of doing business obstacles refers to corruption in Serbia. The citizens of Serbia perceive corruption to be a major problem: the results presented in UNODC report (2011) show that they rank corruption as the most important problem facing their country after unemployment and poverty/low standard of living. The second line refers to the discouraging fiscal and administrative framework for the development of entrepreneurial activities. Although the Serbian government in the Strategy of Development of Small and Medium Enterprises (SMEs) by 2013 predicted a reduction in administrative costs by at least 25 percent by 2011, but just the opposite happened. Thus Serbian entrepreneurs pay three times more taxes than most European countries and the region. Also, the Serbian entrepreneurs have inadequate financial support and the lack of available financial resources in relation to the needs for capital, which is one of the main problem of development of SMEs in the Republic Serbia. Turkey has also identified many obstacles, including the high costs of navigating the inefficient and inconsistent bureaucracy, the difficulty in protecting intellectual property rights, and monopolistic marketplace dynamics, limited access to capital, lack of basic and technical knowledge, and so forth. Surveys of the World Bank (2012), showed worsening from year to year the business environment of the Serbian economy (from 88 position in 2011 to 92 position in 2012, i.e. change in rank -4, but at the same time the business environment in Turkey (from 73 position in 2011 to 71 position in 2012, i.e. change in rank +2).

The both countries pretending to have a dynamic economy have to permanently work on improving the competences of its workforce. The Serbian work force is slow to adjust to the changing economic situation. As a result, the demand for skilled employees is increasing faster than the supply (Radovic Markovic, 2010a). The skill gap can easily explain this statement due to inflexible labour market and missing programmes for specific knowledge and skills. To solve this problem, career counselling and identification of competences and qualifications for an active employment policy should be targeted (Radovic Markovic, 2010b). Besides, there is no synergy between scientific and educational institutions and the environment. There is the similar situation in Turkey. In other words, the communication between universities, public and private sectors flourished. Therefore, the modern business environment should be accompanied by a change in educational environment. Consequently, it is necessary that permanent adjustments between these two environments should be made that will be beneficial for both individuals and the society (Radovic Markovic, 2012a).

According to some scientists ,it can not be said that Turkey is successful in training and support of entrepreneurship (Özmen &Özaltın ,2010).Training of entrepreneurship in universities is given by means of courses, conferences and seminars, congresses and symposiums, and activities of community of scholars (Özmen-Özmen-Uçak, 2007). ). Distance Education has been actually applied in Turkey since 1982 (Ruzgar,2004). Thousands of students today earn university diplomas studying at a distance. On the other hand, problems of organization, technology, and perceptions remain to be addressed (Isman,1997).

Serbia does not have extensive experience deploying online studies and virtual faculties. Forming an international learning network may enhance e-learning opportunities in Serbia as well as in countries that are developing or in transition (Radovic Markovic, 2007) Because the functionality of the technologies and the benefits of virtual learning to learners and professors have been misunderstood, the entrepreneurial process although improved in Serbia has been impacted due to the lack of awareness .

The Europe 2020 Strategy (2010), sets several Initiatives such as "Innovation Union", "New Skills for New Jobs", "Youth on the Move", and "Digital Agenda". In order to efficiently prepare for fast changes in society and work environments, education should provide necessary knowledge and practical skills for students that are trained for management and entrepreneurship (Radovic Markovic,2012). The application of various technologies improves learning environment, makes better and faster communication and provides preconditions create the conditions to encourage entrepreneurial skills.In line with this , entrepreneurship at the university level has received increasing attention world-wide. For mentioned reasons, it is the subject of our research ,too.

## ***THEORETICAL BACKGROUND***

Researches show that there is a strong relation between education level and entrepreneurship. (Celik, 2006). Especiallally higher education is of key importance for entrepreneurs. Education, in one hand, encourages entrepreneurship and sets the substructure of entrepreneurship culture; on the other hand, it develops qualities and competencies of entrepreneur when he sets up a company. (Tusiad,2002).. Researches show that the Youngs who have education for entrepreneurship tend to become entrepreneurs (Ibicioglu et. al.2009).

According to recent research (Liarokapis et. al .2011), the introduction of virtual environments into higher education has the potential to bring a positive change in the learning experience. The online learning environment is quite different from a traditional classroom. At the first place ,it means that the online courses require participants to take on new and different teaching as well as learning behaviors. In addition, an e-learning content differs from other educational materials ,i.e. it can be disassembled as individual learning objects,

tagged, and stored for reuse in a variety of different learning contexts (Harris, 2005). “E-learning context is very important. It is common to find educators who perceive e-learning as internet-only education that encourages a static and content-focused series of text pages on screen. Others envisage the shallow and random online messages that are typical of a social real-time chat session, and wonder how that type of communication could add any value to academic discourse. Some may have experienced e-learning done poorly, and extrapolate their experience into a negative impression of all e-learning.” (Demiray, 2010).

In literature it has been compared online learning to face-to-face learning from a different point of view. Thus Hoben et al. (2002), explored the effectiveness of online tools such as discussion boards and chat rooms while Spataru et al. (2004) addressed evaluating effective online instruction. Graham et al. (2001), McCombs (2000) and Wentling & Johnson (1999) assessed the value of online courses in specific fields of study. In particular, the use of virtual worlds to reach remote, distance, and online learners is creating new opportunities for face-to-face engagement and motivation with difficult-to-reach groups. Draves (2002) provides a list of reasons why he believes the Internet enhances learning, including such advantages as being able to learn at a peak time of the day, learning at your own speed, accessibility to much information, an ability to track personal progress, and the capability to test personal learning efforts. In addition, the e-learning students were in an environment where professors respond to their needs on demand (Radovic Markovic, 2012b). However, most learning environments neglect the learning services and pedagogy aspects of e-teaching. Hence, its development has lagged behind the massive investment in hardware and teacher training in using ICT (Newton & Rogers, 2001). According to some researchers, e-learning pedagogy should incorporate the form of learning pedagogy but goes beyond it to include a deeper study into the incorporation of instructional strategies that take into account of real-time personalized learning content-to-learner adaptability (Teo et al. 2005). However, online courses require participants to take on new and different teaching/ and learning approach-new pedagogy and behaviour. Students are empowered to learn on their own. They are usually far more writing-intensive than traditional classes have ever been. In an online course, general discussions, requests for elaboration or assistance, answers to directed questions, group projects, most assignments, and many tests and quizzes are in writing (Radovic Markovic, 2007). In addition, the education and training alone are necessary but insufficient without providing entrepreneurs with other kinds of support, such as mentorships, connections to funding (especially for growth entrepreneurs), and financial assistance (for micro-entrepreneurs). Capacity building of entrepreneurs outside the formal education system (e.g., soft skill and technical training) is a critically important task towards building a solid entrepreneurial ecosystem“ (Bohoney et al., 2011). Adding distance entrepreneurship courses to existing offerings will increase the number of alternatives that students can choose from. Certainly, students can individualize their own education through their choices (Croy 1998). If their alternatives can be expanded then individualization can be

increased. In addition, we can soon expect that the students could learn with software that is developed for their kind of intelligence and learning style (Christensen et al., 2008). However, despite the many universities around the world recognized e-learning as a very important form of entrepreneurial studies program, there are many students who are not familiar with it. Many still do not know what to expect from this kind of study and what are its features. Moreover, a number of students found that formal education acquired through online programs is not necessary for success in business, but consider that other factors are more important. Keeping above in mind, we have done research to determine, among other things, whether are our students familiar with this form of study and what they expect from e-learning. In view of these and similar questions, we tried to do an analysis and compare the results of research on Turkey and Serbia.

## ***METHODOLOGY***

The questionnaire is designed to investigate the concepts of "e-learning"/"distance learning" and "entrepreneurship", from the stand point of view of students in this field. This Questionnaire is applied to Anadolu University, Faculty of Economics, Turkey and Belgrade Business School, Serbia. The sample of students who participated in the survey is approximate for both countries (100 respondents were from Turkey and 98 respondents from Serbia).

The ratio of the respondents in Turkey is 65: 35 (female and men respectively), but in Serbia are 72 : 20 (female and men respectively). The highest percentage of women (71%) in Turkey are between 21-23 years old. On the other side, the highest percentage of women (65%) in Serbia are aged between 19 to 22.

Our research included eight questions as follow:

1. Do you intend to run your private business as soon as you graduate?

- A) Yes
- B) No

2 Why would you like to be an entrepreneur?

- A) This is the only way to get a job
- B) I can earn more than working for someone
- C) I have a good business idea which I want to realize

3. Do you have any role model among successful entrepreneurs?

- A) Yes
- B) No

4. Is formal education necessary for entrepreneurship ?

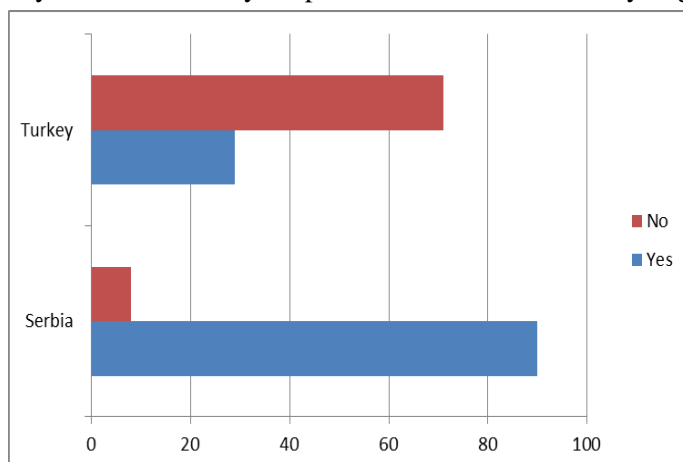
- A) Yes
- B) No

5. Do you believe that distance learning would be a good solution for future young entrepreneurs?
- A) Yes  
B) No
6. Would you like to attend one of these distance learning programs ?
- A) Yes  
B) No
7. What would be the most important in selecting such a program, and ways of learning?
- A) Acquisition of knowledge  
B) The faster and easier way to graduate  
C) Flexibility in studying
8. What do you think is crucial to be successful in the entrepreneurial career?
- A) To be highly motivated to succeed  
B) Have the innovative ability and have original business ideas  
C) Having good business contacts

## **KEY FINDINGS**

The results obtained from our questionnaire we use in performing a comparative analysis between the two above-mentioned countries.

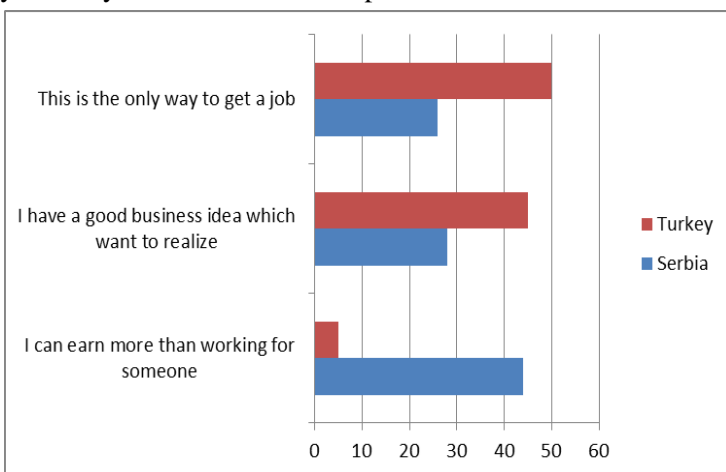
1. Do you intend to run your private business as soon as you graduate?



We started this research with a question „Do you intend to run your private business as soon as you graduate?”

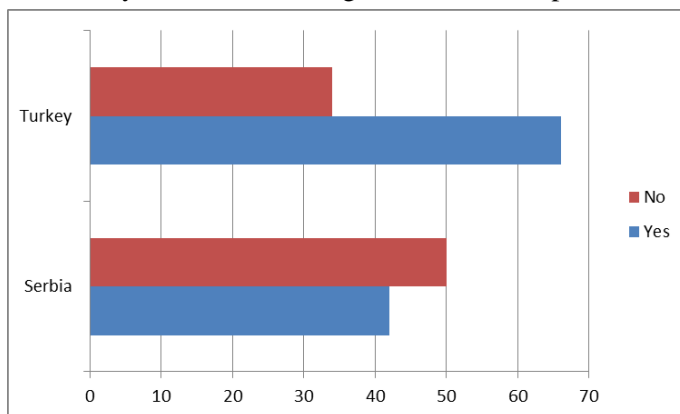
Twenty-nine respondents from Turkey (29%) answered “Yes” to the question and 71% said “No”. Only 1/3 of responders are intending to start up a business after graduation . Although young people in Serbia are generally preferred to employ primarily in state institutions, but to start their own businesses, this study showed different results. Very interesting is the opinion of the respondents from Serbia ,i.e. about 90 % respondents are really ready to launch their own businesses as soon as graduate . The explanation lies in the fact that the respondents attend business studies. Certainly the results would be different if made the same question to students from technical university or college.

2. Why would you like to be an entrepreneur?



The third option is the most important by 50 respondents (50%) from Turkey (“I have a good business idea which want to realize”) . However, this opinion is not shared by respondents from Serbia. For them is of key importance „ to earn more if they work for themselves“ (45%).

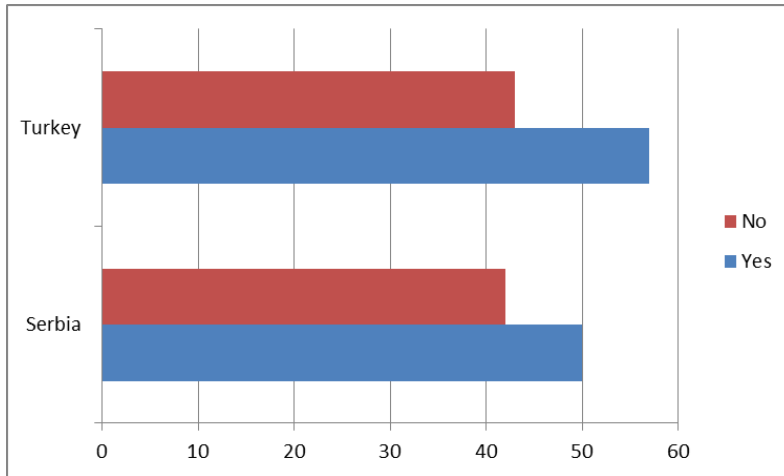
3. Do you have any role model among successful entrepreneurs?



Sixty-six of all respondents (66%) from Turkey answered “Yes” to the third question .It can be concluded that the most respondents from Turkey have a role

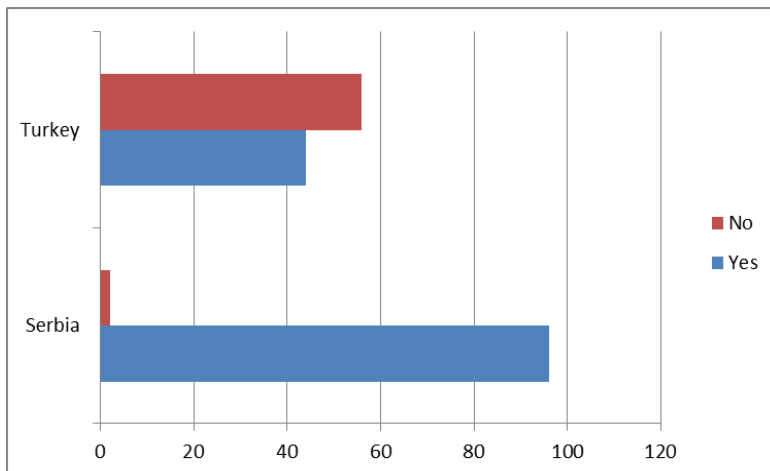
model among any successful entrepreneurs. But, the responses from Serbia were quite different. The most of respondents (50%) are answered “No” and 42 respondents (42%) said, “Yes”. The reason that young people in Serbia do not have role models or to a lesser extent than in Turkey can be explained by the fact that private businesses have a shorter tradition here. Moreover, there is a much smaller number of true role models, given the high level of corruption that enabled the successful unethical businesses.

#### 4. Is formal education necessary for entrepreneurship?



Fifty-seven respondents (57%) from Turkey answered “Yes” to the question four and fifty (50%) from Serbia. It shows that in this case there are no major differences between the two countries.

#### 5. Do you believe that distance learning would be a good solution for future young entrepreneurs?

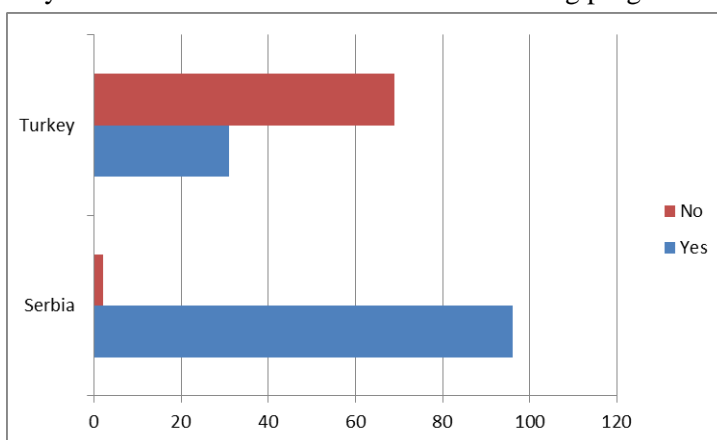




Forty-four responders (44%) from Turkey answered “Yes” to the question five ,while 56 responders (56%)said“No“.Women mostly do not believe that distance learning would be a good solution for future young entrepreneurs. They share equally the same opinion with men.

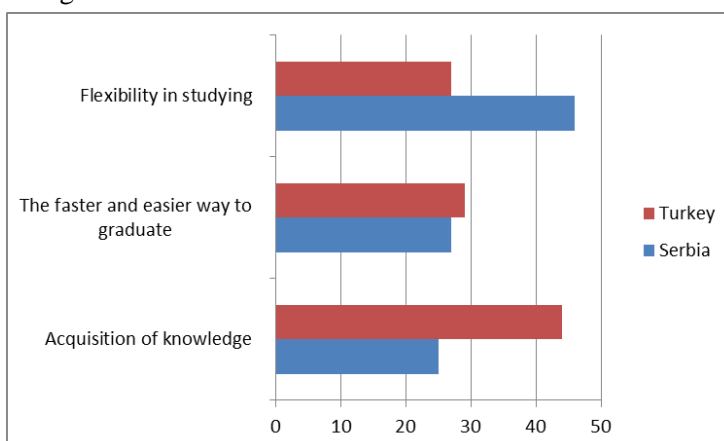
As many as 90% of respondents from Serbia believe that the distance learning would be a good solution for future young entrepreneurs. Women and men equally mostly believed that distance learning would be a good solution for future young entrepreneurs.

#### 6. Would you like to attend one of the distance learning programs?



Thirty-one of the total number of respondents (31%) from Turkey answered “Yes” to the question six , while 69 responders (69%) answered “No”.On the other hand, respondents from Serbia almost all said“Yes”.Probably ,the reason for such a large number of respondents who gave a positive answer can be found in the fact that, first of all, the students like to see how e-learning works in practice because it is still not widely applied in Serbia.

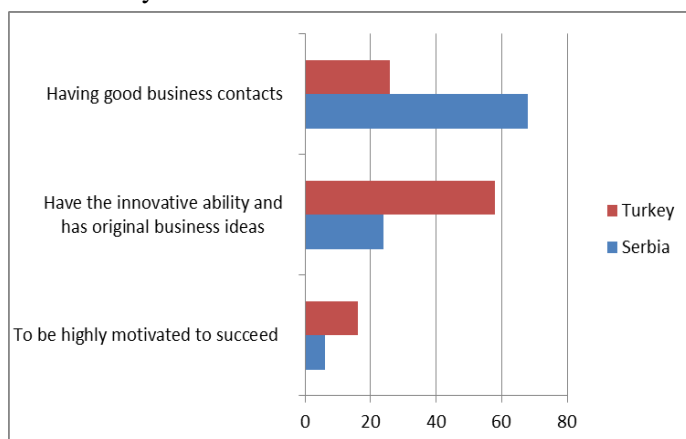
#### 7. What would be the most important criteria in selecting such a program, and ways of learning?



In this question the first option “Acquisition of knowledge” is marked by 44% (44 responders) from Turkey and 25% (25 respondents) from Serbia. The second option “The faster and easier way to graduate” is marked by 29% (29 respondents) from Turkey and 27% (27 respondents) from Serbia. The third option “Flexibility in studying” is marked by 27% (27 responders) from Turkey and 48 % from Serbia (48 respondeents). There are no significant differences between respondents divided by gender for this question for the both countries.

It should be noted that the top priority for respondents from Serbia in selecting some e-learning program is „flexibility in studying“, while for those from Turkey is an „acquisition of knowledge“ as the most important.

#### 8. What do you think is crucial to be successful in the entrepreneurial career?



Question 8 is “What do you think is crucial to be successful in the entrepreneurial career?”. The first option in this question “Have the innovative ability and has original business ideas” is marked by 58% (58 responders) from Turkey and 22% (22 respondents) from Serbia. The second option “Having good business contacts” is marked by 26% (26 responders) from Turkey and 70% (70 respondents) from Serbia. The third option “To be highly motivated to succeed” is marked by 16% (16 responders) from Turkey and 6% (5 respondents) from Serbia.

## ***CONCLUSION***

According to the results of the survey, when respondents replied on the question whether they believe that distance learning would be a good solution for future young entrepreneurs, it can be concluded that the Turkish women mostly do not believe in the mentioned opportunity. They share equally the same opinion with men. Hence, it is found that the distance education is slowly accepted among students in the Turkish education system. On the other side, about 90% of respondents from Serbia believe that the distance learning would be a good solution for entrepreneurs. This opinion is shared by women and men equally. In addition, it should be noted that the top priority for respondents from Serbia in selecting some e-learning program is „flexibility in studying“, while for those from Turkey it is an „acquisition of knowledge“. There are also differences between both countries in terms of preferences among students for dealing with entrepreneurial business. In line with this, respondents from Turkey would like to start up their business because they want to realize „a good business idea“, but respondents from Serbia are motivated to run business because „an opportunity to earn more than work for someone“.

Although there are differences between the results obtained for these two countries, both of them should apply more effective learning strategies. Furthermore, it is necessary to explore how to make e-learning more popular and more accessible for students and to identify their needs and tailor a programme to meet them. Namely, everywhere in the world the existing education system is being redefined and educational programs that have to closely relate to entrepreneurship are being improved. If Serbs and Turks become more familiar with the (ICTs) and their implementation in learning and teaching entrepreneurship in high education, potential learners as well as educators can expect the benefits from them.

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# **INFORMATION TECHNOLOGY AS AN INCENTIVE FOR LIFE LONG LEARNING IN THE REFORM OF THE EDUCATION SYSTEM**

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## **Abstract**

*The purpose of this paper is to explain the impact of the development of information technology, and accessibility of information, the promotion of lifelong learning and its integration into daily life. It presents an analysis of the relationship between the modern information and communication technologies and life long learning, trying to clarify what conditions are needed and in which ways we can integrate and use this technology for the purpose of educating individuals, as well as society and to show the benefits of its use.*

*The paper pays special attention to e-learning as a new modality of life long education, which has arguably the most important role in the education of adults in the immediate social function of higher productivity and faster and easier employment. The vision of life long education is a concept for resolving unemployment, improving working conditions and developing the career of the individual as well as creating an entrepreneurial spirit.*

**Keywords:** *life long learning, information and communication technologies, digital literacy, e-learning*

## ***INTRODUCTION***

Life long learning has become a popular term in the last few decades. It is most commonly explained through the challenges of the modern world, contemporary development and globalization, all of which are characteristics of the 21st century. Economic and social changes, as well as the rapid transition of society into a “society of knowledge”, along with demographic changes, according to which the population of Europe is becoming older, are all obstacles in the way of a new approach to education and learning. In an era of transition, flexible, knowledgeable individuals are needed who can quickly adjust to changes and find efficient solutions in unpredictable situations. This promotes the development of knowledge and competence that will enable an individual to adjust to a society founded on knowledge and to actively participate in every sphere of social and economic life, and in that way manage his own future.

It is reasonable to conclude that life long learning is some sort of a “second chance” for the improvement of skills and offers the possibility of learning at a higher level. Individuals become active participants of the educational process.

Life long learning is a continuous and permanent education that can be defined as the activity of learning throughout life, with the goal of advancing your knowledge, skills and ability within personal, civil, social and professional aspects.

Integration into the life long learning process isn't only the responsibility of the individual, but also the employer's. The responsibilities of businesses will grow when it comes to training their workers and enabling their employees to acquire the knowledge they need to do their jobs better, as well as to function better in society, because only complete development leads to forming a content and successful personality which can achieve it's full potential.

Under life long learning we imply:

- The understanding that education is a continuous aspect of everyday life
- Acquiring and modernising all kinds of abilities, interests, knowledge and qualifications which will enable an individual to adapt faster to the “society of knowledge” and to active participation in all spheres of social and economic life thus giving him control over his own future
- Acknowledging all types of learning: formal education (e.g. a course in college), informal education (e.g. developing skills that are necessary for a job), and informal inter-generational learning (exchanging knowledge with friends and family members, e.g. child-parent).

Formal education is the kind of education that is acquired in schools and is regulated by the law. The most typical example of formal education is school (elementary, high school and college). The term formal education is used to describe a system of education that is organised and monitored by the state,



regardless of whether the state is the founder of the institution or whether it merely granted that right to an individual.

Seeing as formal education is no longer able to fully meet the challenges of the modern age, the support of non-formal education is essential. Non-formal education has continued to follow the needs of education, caused by the rapid development of science and technology but also due to economic and social changes. As a result of these changes the educational concept has also changed into the modern concept of life long learning. Non-formal education is not the opposite of formal education but rather an important and essential part of it. The biggest advantages of non-formal education over formal education are its adaptability and flexibility.

Let's take, for example, a computer programmer with a college degree tied with IT. The knowledge he has gained in school will become obsolete just a few years after he's graduated. To keep up with the times, he will have to perfect his knowledge by reading technical books, watching online tutorials and lectures, getting involved in projects where new technology is used, and so on. This is an example on non-formal learning

## ***LIFE LONG LEARNING AS A RADICAL REFORM OF THE CLASICAL EDUCATION SYSTEM***

The development of higher education in the last decade can be observed by looking closely at three essential elements.

- The significance of changes and their impact on education
- The impact of globalization on changing the overall goal of higher education
- Changing world of work and the labour market, which has changed what we demand from education. The labour market needs trained prepared individuals with occupational mobility who are ready for life long learning. [4]

The concept of life long learning involves learning, training and knowledge in a formal and informal sense. But what exactly does that mean? The history of the evolution of life long learning has developed through two generations:

The first generation was carried out in the framework of UNESCO and is based on a humanistic orientation. Life long learning had been developing its own personal development and has achieved goals of democracy and humanism. To achieve this it is necessary for people living in an environment which fosters learning to integrate formal, non-formal and informal knowledge. The concept is considered to be much broader than just education within the educational system.

The second generation, focuses the meaning of life-long learning, solely on the results of economic development. The second generation was carried out by the OECD and the European Union. Their vision is the concept of solving structural unemployment, improving employment and the development of careers.

In the framework of OECD's life long learning strategy, learning is treated differently in relation to professional activities and individual learning. The International Commission for the development of education, recognises the right and need of every individual to acquire life long learning, with the emphasis not on the type of system, but rather on the quality of education that the individual acquires. As a prerequisite, greater flexibility is recommended, as well as the need for greater student participation in the educational process involved.

There's no doubt that globalization and the rapid development of technology, especially when it comes to information and communication, have to a large extent alter the structure of society, the way in which the economy functions and the expectations of individuals. The transition from an industrial or post-industrial society, to a knowledge-based society poses new challenges, those being:

- Economic development and prosperity - countries need to have a sufficiently flexible economic system which can be adapted as to successfully feed their people and provide them a decent quality of life;
- Social inclusion, the understanding of democracy - citizens need to become aware of their rights and obligations under the modern forms of government, to learn how to behave in accordance with their rights and obligations and to be committed to preserving and improving the existing forms of political, social and cultural systems;
- the development of the achieved individual - the right of every individual to be versed in the set of available options for the establishment and restructuring of their own life paths.

From a general point of view none of these challenges concerning the economic system, the community and the individual, differ from, at least nominally, the challenges human society has faced throughout history. What is different is how we expect to respond to these challenges. Knowledge, skills, abilities and personal competence (creativity, the ability to learn, to take initiative and responsibility, motivation) are becoming more important than simply knowing the facts. It goes without saying that this has brought up the question of the structure of the educational system within which these competencies are expected to be developed.

The point is, that in fact, that if you concentrate on the competence the individual has, then the manner in which he has acquired that competence ceases to be important. In this sense, there is no reason as to why informal and implicit learning are not accepted equally as formal education. From the viewpoint of the altered or extended needs of society it can be concluded that the educational system is expected to enable individuals to be effective in their personal, social and professional lives. This also means that life long education can be understood as a

means by which the community is trying to respond to the challenges posed by globalization, where classical education is, obviously, not up to the task. In other words, life long education can be seen as a name for a radical reform of the system of classical education. This statement is probably best illustrated by the conclusions of the "UNESCO Working Group on Education for the 21st Century" [15]. Considering life long learning, the group concluded that it should be based on four grounds:

- The ability to learn (Learning to know) - the concept of education is aimed at developing the skills of independent learning, not on capturing structured knowledge.
- Personal competence (Learning to do) - Developing personal competencies that enable decision-making and working at a systemic level, rather than having narrow professional skills that characterised the industrial society.
- Learning about coexistence (Learning to live together) – preventing possible conflicts by pointing out the differences between humans in the earliest stages of education, and point out the similarities and bonds between all people in the later stages.
- Personality Development (Learning to be) - education must lead to the overall development of each person - mind and body, intelligence, sensitivity, aesthetic and spiritual value. Every man needs in education to develop critical thinking and reasoning that would allow him to choose his path in life.

Bearing in mind the set requirements, it is clear that life long learning is actually feasible only if viewed as a process that begins in preschool, continues through the period of compulsory education, followed by a period of secondary education and development, and then continues throughout your lifetime, through various forms of learning and gaining experience in the home, the workplace, the higher education institution, in the community and in formal and informal means. In order to achieve this it is necessary to radically review resources, and ways to implement the objectives of education and training. There is no doubt that the main burden of the upcoming work falls on the national governments, nevertheless, everyone who is a part of the educational process must get involved as well. In the context of the changes that are expected in the 21st century on the front of higher education UNESCO had organised a World Conference on Higher Education [19], where, among other things, it was concluded that it was necessary to develop the higher education system of life long learning that will provide students with an optimal range of choice of a variety of study programmes as well as the flexibility to move between them. In addition, it is required to provide flexibility when it comes to entering and leaving the system. In this sense, it is recommended that higher education institutions redefine their role to make full and open virtually continuous access to higher education. In addition, it is necessary to develop mechanisms by which the acquired competences are evaluated and recognised qualifications.

Life Long Learning, or the concept of lifelong education / learning, refers to the idea of learning that lasts a lifetime. These two terms, lifelong education and lifelong learning include one another, as a lifelong education system includes organizational, administrative, methodological and procedural measures to promote lifelong learning. The basic idea is that there should be a system of education, which shall at all times, to every individual, regardless of age or professional status, grant the opportunity to master new, different and useful skills. In addition, formal and informal education in this sense are considered complementary elements of the same entity. Lifelong education, as the intensive development of human resources, has become a necessary condition for increasing the efficiency of modern society.

### ***EDUCATIONAL PROCESSES IN EUROPE***

The educational programme "Socrates" includes some 30 European countries, with the aim of building a Europe of knowledge and thus providing an answer to the big changes in this century. The programme sought to promote access to education for all, and help people to gain the required qualifications and skills.

The meeting of the European Council held in Lisbon in March 2000. marked a turning point for further work of the European Union. The conclusions of this meeting confirmed that the promotion of life long learning must accompany a successful transition to a knowledge-based society. Starting from the basic objectives of the Lisbon agenda, the European Union by 2010. become the most competent knowledge-based economy, it is natural that the radical review of the education system was singled out as a key instrument in the realisation of the goals.

Therefore, the programme "ET2010" was made, which laid the basic priorities of the strategic actions to reform the entire education system. Along with that we started with the development of quantitative indicators that would enable it to determine the extent to which the objectives are being achieved. Since the periodic reports indicated a relatively slow progress, and that there is a significant gap between the verbal acceptance of all the objectives and implementation tools to achieve them, the European Commission found it necessary to start a programme to support the achievement of these goals, and in July 2004 adopted a proposal for a new generation of EU programmes covering the period from 2007 to 2013 that deals with learning at all stages of life. The proposed new Community programme got a name - The programme "Lifelong Learning" (Lifelong Learning Programme - LLP), and is designed to inherit and deepen the second phase of the "Socrates" and "Leonardo da Vinci" programmes. [14]

The main objective of this programme is to support the implementation of the European area of lifelong learning within which it would be possible to have a decent quality of education creativity would be promoted along with competitiveness, employment and the growth of the entrepreneurial spirit and

innovation. The decision explicitly states that under life long learning we refer to any general education or vocational education and training, as well as informal and implicit learning throughout our lives, which results in the increase of knowledge, skills and competencies of individuals.

Participation in the life long learning programme is compulsory for all EU member states. Countries that are candidates for membership in the EU, EFTA member states which are members of the European Economic Area (EEA) and Switzerland also qualify for the programme. The programme is open to all countries of the Western Balkans in a separate agreement that each of these countries has signed with the EU's concerning participation in EU programmes. If any of these countries accept to be in the programme they also assume all liabilities that are covered by the decision to be a part of the programme. The main task of each country is to establish a national strategy for life long learning.

A special part of the country's strategy should include a plan that will ensure the achievement of key competencies specified as the "reference framework lifelong learning" [14]. Reference Framework provides eight key competences:

- Communication in the mother tongue: the ability to express and interpret concepts, thoughts, feelings, facts and opinions in oral and written form;
- Communication in foreign languages;
- Mathematical competence and basic competences in science and technology;
- Competence in the application of information technology;
- Capacity for independent learning;
- Social and civic competences;
- Sense of initiative and entrepreneurship;
- Understanding of Europe's cultural heritage and the importance of presenting creative achievements in the field of culture.

For each of these competencies a precise definition is provided stating the essential knowledge, skills and attitudes that determine whether the appropriate competencies have been acquired.

In order to implement the programme each participating country is required to establish a National Committee of Life long Learning, which is to provide all the necessary tools to implement the programme, and to establish and monitor appropriate bodies necessary for the management and implementation of the programme. The National Committee must be a legal entity, or be part of another body which is a legal entity, but it can not be in the ministry.

Noting that lifelong learning is a key factor in the role of education in achieving the Lisbon Strategy, the EU member states have concluded that it is essential that this programme becomes an integral part of the strategic programme ET2010 [14]. The programme notes that the starting point of the implementation programme of life long learning is the European Qualifications Framework, which implies that it is development of national qualification framework is needed where

it will clearly be stated what is expected from the educational programme in terms of acquired knowledge, skills and competencies. The expansion of the "ET2010" programme obligates all the countries to complete their national programmes by the year 2010.

The programme stresses that national frameworks should facilitate the development and implementation of national Life long Learning strategies in which special attention will be given to the verification and recognition of competencies acquired through informal and implicit learning, as well as recognition of institutions that organise informal education. In addition, it is expected to establish a flexible path of education, such as the transition from the academic to the vocational education and vice versa, opening universities to non-traditional learning and creating procedures for the recognition of previously acquired skills.

Based on the fact that the realisation of this goal depends on all of the participating countries, the box "ET2010" stresses the importance of political commitment of each country to provide effective support for the programme to enable it to significantly influence the national education reform. Hence, it underlines the importance of cooperation in the field of educational policy to produce visible results and to cover all stakeholders. In this context it is considered that the quantitative monitoring of progress is key to the success of the whole strategy.

Education reforms in Europe are aimed towards more open and flexible education systems, as well as the creation of new models of education and training, that will meet the various categories of current and future students, as well as incorporate new technological innovations into the process, to make it even easier.

## ***THE CONDITION OF THE EDUCATION SYSTEM IN SERBIA***

Serbia joined the European Union's Life long Learning Programme in order to cooperate in the field of education and training, mobility of participants and their preparation for the European labour market. A memorandum between the Government of the Republic of Serbia and the European Commission was signed in Brussels on 21 December 2011. This allowed the full participation of Serbia in the Programme for Life long Learning, in contrast to previous indirect participation. Thus, Serbia got a chance to participate in all EU projects on all levels. Serbia has so far taken part in the area of science through the FP7 programme, in the field of higher education through the "Tempus programme" and now can participate in all EU projects at all levels of education which is, a big opportunity.

The objectives of the country's participation in the educational "Programme" are to improve the quality of education, increase the general level of education among the population, greater access to all and the development of computer literacy. The objectives of Europe are our objectives too. These objectives are most

commonly achieved by using inter-culturalism, harmony, understanding, tolerance and mutual respect. The programme addresses all levels of education, all forms of education - formal and informal, any knowledge a person has acquired throughout his life that contributes to his competencies - knowledge, skills and attitudes in their personal, professional and civic realm. Also participating in this project is the Ministry of Education and Science.

There is a real chance for a big step forward in the modernization of teaching methods, the integration of e-learning in the Republic of Serbia, for which educational institutions and some teachers are interested. By some indicators, high schools are the most promising. With minimal investments in school equipment and some training for teachers who are not yet computer literate, in short time a lot can be accomplished. Investments in primary schools and colleges would have to be followed with some motivational campaigns for the educators, where the benefits of e-learning will be presented to them clearly.

Educational institutions in the Republic of Serbia have gained considerable experience and a lot of good practice in some of the most important objectives to be achieved through a variety of projects within this programme. The achievements are as follows:

- Improving the quality of education,
- Providing formal and informal learning for people of all ages and all social groups,
- Increasing in the general level of education of the population,
- encouraging the acquisition of skills that lead to higher employment and awakening the entrepreneurial spirit,
- teaching innovation, creativity, and trying some more sophisticated methods,
- use of the advantages of the new information technologies.

The Life Long Learning Programme consists of six sub-programmes:

1. "Comenius" – the programme is used for both classes and learning, from preschool to the end of secondary education. One of the main goals of this programme is to support the development of innovative information and technology, services and educational practice for lifelong learning;
2. "Erasmus" - a programme designed for higher education (academic and vocational studies) in order to support achieving the concept of a European Higher Education;
3. "Leonardo da Vinci" – used for preparing Europe for entering the labour market by lowering unemployment. Businesses have a need for a competent workforce that can compete in spite of the rapid scientific and technological change. The programme includes both classes as well as secondary vocational education with instructions that provide this type of education in order to develop competencies and skills necessary for participation in the European labour market.

4. "Grundtvig" - the programme includes all types of adult education, as well as institutions that provide this type of education in order to meet the challenges of an aging European population;
5. "Transversal" - transverse routine, learning foreign languages, development of educational policy, information technology, support for Roma education and dissemination of good practice;
6. "Jean Monnet" – helps the institutions that deal with European integrations focused on specific topics relevant to all levels of education such as strengthening the European dimension in education through understanding, respect and dialogue among cultures.

If you look at the statistics presented by the RSO and relate to the individual use of the Internet, in 2012, we can safely say that almost 50% of the population does not use the internet, which means that we must urgently work on this problem (Table 1).

**Table 1-** *The frequency of Internet use - individuals in Serbia 2012*

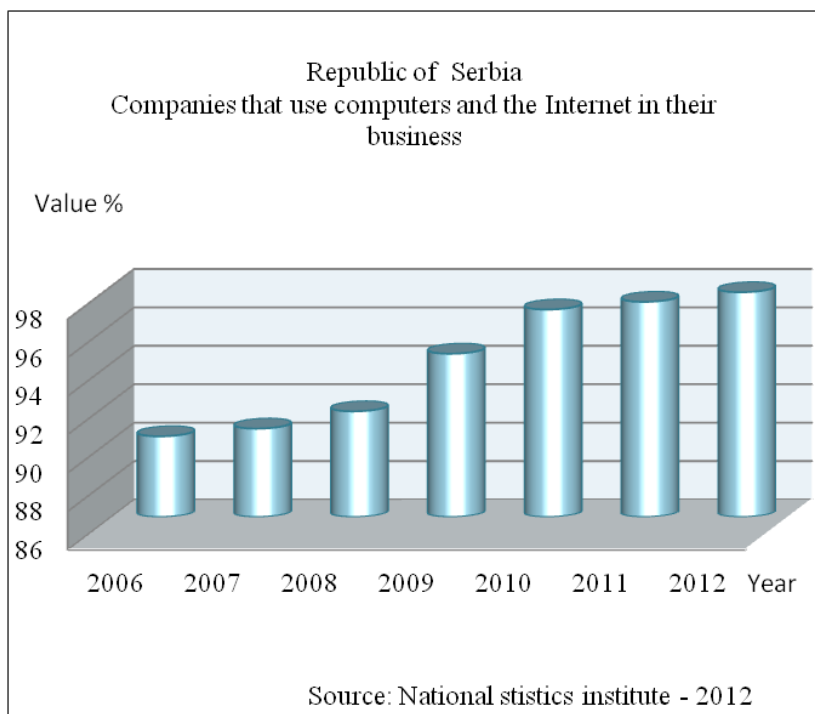
<i>Or.number.</i>	<i>Frequency of internet use - individuals</i>	<i>%</i>
1.	Has never used	48,4
2.	In the last 3 months	48,4
3.	More than 3 months, less than a year	1,6
4.	More than a year	1,6

*Source: National statistics institute- 2012*

If we take a look at the ratio of the use of computers and Internet in companies, in the statistical period between the year 2006 and 2012, we can say that it is a satisfactory condition. In 2006 90.2% used computers and the Internet in their operations and in 2012 \_ 97.7% (Graph 1).

In Serbia there are no relevant studies on this issue, it can be said that the changes are accepted, that there are innovators who are interested in more versatile and applicable innovations in information technology, but we are still quite far from the information society in which citizens and businesses will not have to waste precious time waiting at the counters to perform their tasks. We hope that the state will soon provide its own information technology services and institutions, and then enable the "electronization" of business in the economy



**Graph 1.** *The use of computers and the Internet in business*

The condition of the educational system in Serbia is seen in the light of these indicators. At the same time it points to the possibility of using the experience of other European countries in developing strategies for lifelong learning. A prerequisite for the success of such a strategy is the firm determination of the state in terms of the direction of the educational system reform.

Directions of the educational system reform:

- Raise level of information literacy;
- Provide legal, technical and personnel basis for quality teaching, especially when it comes to information technology;
- Prepare the curricula modeled on similar foreign ones in accordance with good practice and in collaboration with employers and their needs;
- Stimulate education employees through e-learning in all areas;
- Do not restrict enrollment of students at distance, only meet the standards of quality.

It is necessary to encourage all forms of partnership between higher education institutions and employers, in order to harmonise education with the needs of the economy, including the creation of joint companies. Encouraging entrepreneurship of the students themselves and their self-employment upon graduation. Include the entrepreneurs in the creation of educational programmes in order to improve the knowledge and skills they need to possess as future human resources in the labour market.

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## ***LIFE LONG LEARNING AND INFORMATION TECHNOLOGY***

Information and communication technologies represent a very important link in the system of open lifelong learning . The rapid flow of information, access to books, educational software, e-learning, are just some of the characteristics that mark education in the contemporary society. The use of ICT in education brings innovations in teaching methods and has the capacity to greatly alter the learning environment. The development of information technology creates great opportunities for self-acquisition of knowledge and skills, so many professions nowadays depend on computer technology and technological awareness as the key skills for professional success.

### ***Technological literacy***

Technological literacy in a broader sense, refers to an individual's ability to understand the way of functioning of technology and know how to use devices based on this technology. Defined Technological literacy requires a wide range of interdisciplinary knowledge and skills needed to understand the technology, to project, design, produce and use it. In this sense, it is more in need by engineers and people with technical and technological expertise. in a narrower sense defined, technological literacy involves understanding the ways of functioning and skills for their use.

That which is being discussed nowadays is computer literacy, which is, by its importance in the contemporary society, getting closer to the importance of classical literacy and is really needed. IT literacy is emerging as one of the basic prerequisites for successful work and business. Under the term information literacy today, in addition to the ability to use the Internet computers, involves the possession of a large amount of diverse knowledge, which allows to find the needed information in the extremely large amount of it . In the modern world, the amount of information offered is huge and in order to find those needed an individual must be educated, which includes:

- Constant learning, because the IT literacy nowadays is acquired through ongoing, serious and comprehensive teaching and learning.
- Determining when some information is needed, and being capable to locate, evaluate and effectively use the information requested.
- Technological innovation and the use of the Internet creates a competitive advantage, while, technological awareness may also be helpful in improving everyday life. Building a modern educational system should allow inclusion in the modern information society, as well as specialist or expert knowledge in the field of ICT (information and communication technology).

- The introduction of ICT in the educational system requires substantial resources and time, therefore phased introduction of ICT is necessary , since it is impossible to get a complete computer equipment at once, install computer networks, and in particular to train all participants in the educational process for the use of ICT.
- In this section, special attention will be paid to one of the key competences for lifelong learning: Competence in the application of information technology.

## *Digital competence*

Application of information technology in lifelong learning implies the use ICT at work and at leisure. Digital competence represents the basic understanding of how computers, operating systems and the Internet function, and knowledge of computer applications for word processing and spreadsheets, use of presentational tools and the basics of database. Basic skills in using computers include skills such as accessing, collecting, processing, storing, presenting and exchanging information as well as the use of the Internet.

When talking about digital literacy, it is very important to insist on digital literacy education of the teaching staff. With the help of computers it is possible to systemise and reduce work around keeping records of teaching, on the level of educational institution, but also of the entire educational system. The role of the teachers is changing because they are often separated in space and time from their students. Professors and teachers become facilitators, mentors and mediators in the educational process.

The change in the role of teachers and acquiring new competencies, in accordance with global technological development, is a necessary process where the professional development of teachers is the most logical way to acquire these competences. The skill of integration of modern information and communication technologies in the contemporary learning process becomes a major factor in teacher training.

**Table 2: Digital competence**

<i>Digital competence</i>	
<i>Definition</i>	<p><i>Digital competence involves the use of electronic media in work, leisure and communication. This competency is associated with:</i></p> <ul style="list-style-type: none"> <li>• <i>logical and critical thinking,</i></li> <li>• <i>high levels of information management skills and well-developed communication skills,</i></li> <li>• <i>the use of multimedia technology to retrieve, assess, store, present and exchange information and</i></li> <li>• <i>communication and participation in the Internet network</i></li> </ul>
<i>Knowledge</i>	<p><i>A thorough knowledge of the nature, role and opportunities of ICT in everyday situations include:</i></p> <ul style="list-style-type: none"> <li>• <i>Understanding the main computer applications, including word processing, database, storage and data management;</i></li> <li>• <i>The knowledge of the possibilities offered by the Internet and communication via electronic media (e-mail, video conferencing);</i></li> <li>• <i>the difference between the real and the virtual world;</i></li> <li>• <i>Understanding the potential of ICT as a basis for creativity and innovation for personal realization, social inclusion and employment;</i></li> <li>• <i>A basic understanding of the reliability and validity of the information available (availability / acceptability) and an awareness of the need to respect ethical principles in the interactive use of ICT.</i></li> </ul>
<i>Skills</i>	<p><i>Seeing as ICT has many applications in everyday life involving activities such as learning and leisure activities, the required skills include:</i></p> <ul style="list-style-type: none"> <li>• <i>The ability to search, collect and create (organising, distinguishing between important and irrelevant, subjective and objective, real from virtual), electronic information, data, concepts and their use;</i></li> <li>• <i>The ability to use assistive devices (presentation, graphics-final, diagrams, maps) to obtain, present and understand complex information;</i></li> <li>• <i>The ability to access and search the Web and use Internet services such as forums and electronic mail;</i></li> <li>• <i>The ability to use ICT as a support for critical thinking;</i></li> <li>• <i>Creativity and innovation in different contexts at home, at leisure and at work.</i></li> </ul>
<i>Attitude</i>	<ul style="list-style-type: none"> <li>•</li> </ul>

## ***ELECTRONIC EDUCATION***

E-learning is increasingly practiced in education systems and can be applied to any educational institution and at all levels of education. The trends in today's society require such developments in lifelong learning that take place outside of institutions of education, but most often in collaboration with them. And it can be organised periodically using a variety of methods, forms and means of specialization, such as distance learning, for which age isn't an obstacle. Distance learning is a term which is used to describe a process of learning in which the source of knowledge and the recipient of knowledge are physically remote, and the information and communication technology serves as a mediator between them.

E-learning is a combination of quality and progressive educational technology achievements. It is based on the principles of free learning, the use of computers in educational programmes and modern telecommunication - Internet for teaching. Learning is organised as a process of dialogue in virtual classrooms. That means the separation of the mentor from the student in space or time. [16]

A number of terms are used for distance learning in the English language: e-Learning, Online / On-line education, Distance Learning, Distance Training, Distance Education, Virtual Instruction, Virtual Education, Virtual Classroom .... It is a great pedagogical shift from the teacher to the student, where the development of independent learning is much more active. That process brings:

- the possibility of specialization and studying at any time,
- broadcasters provide easy access to learning materials,
- easier access to students who are very far apart,
- opportunity for faster feedback and
- the possibility of expressing content using words, sounds and images.

### ***Preconditions for the implementation of electronic education***

The action plans eEurope 2002 and eEurope 2005 place e-learning as a priority and set tasks for infrastructure, equipment and basic skills required prior to the requests for their integration. The initiative further develops these tasks from the educational point of view, emphasizing the need for innovative pedagogical approaches when it comes to the quality of learning and easy access to resources and services for e-learning. It also highlights the need to remove structural impediments to innovation, such as organizational and legal barriers, as well as the way in which knowledge and competence are measured and certified.

Resources required for the introduction of distance learning:

- technical component (infrastructure, hardware, software)
- human resources (teachers, users, administrators)
- component of course content (define methods, approaches and ways of preparing and developing instructional content).

Appropriate technical prerequisites are necessary for a functional implementation of e-learning. The technical component includes existence of an adequate infrastructure, Internet connectivity (Internet, Intranet, Extranet), the implementation of support systems for learning (hardware according to set standards) and video-conference system and licensed software.

For the successful implementation of multimedia in teaching it is necessary to have adequate multimedia contents and software for its production. There are a couple of ways of getting the multimedia teaching materials:

- by purchasing prepared materials,
- by independent development of multimedia teaching materials by applying one of the prepared programmes or a software package to create multimedia presentations (Power Point, Front Page, Dreamweaver, Flash, etc.) or by purposeful production of programming material in one of the programming languages.

Software for the needs of education has to be made according to the standards of System quality JUS ISO 9000.

The characteristics of quality are:

- installation functionality, fulfillment of the required functions, correctness,
- reliable level of performance for a particular period,
- usability for the end users, user-friendliness, transparency, enforceability,
- efficiency of a level, i.e. performances for a certain period,
- maintainability, possibility of modification of the software,
- portability,
- well documented, possibility to manage the educational process (the process of mastering the material and checking the acquired knowledge),
- simple functioning, realization,
- economy,
- openness to additions.

The most widely used application for creation and maintenance of on-line courses through the Internet is "Moodle" (there are over 150 thousand registered users). It is one of the best Open Systems Learning Management System. The application can be downloaded for free from the official Moodle website. [21] The key factor in the establishment and sustainability of implementation of e-learning is the upbuilding of the capacity of human resources. In that sense, it is certainly

necessary to provide ICT training for administrators, teachers and users, as well as to assess the level of IT literacy.

Professional specialization of employees in the educational system includes training in use of hardware and software tools, custom applications, Web, software for presenting and managing supervising. The teacher also needs to improve his knowledge on Internet browsing, share experiences with his colleagues, make multimedia preparations for the lecture and give the lecture in class or ‘‘from afar’’. [15]

To create a presentation of the content a teacher should master:

- tools and technology used for the implementation of e-learning,
- create a learning resource and
- master databases.

All of the above seems extremely complicated because it includes a variety of different technologies and tools. The best start is to make Power Point presentations, creating a presentation that shows the area of teaching, and recording it as HTML, - (a technology for displaying Web pages). Presentations should include application of a variety of video and audio materials. The use of video technology is a relatively new area of research, but empirical data show that there is a positive correlation between improved learning and use of personally created videos. Microsoft Producer is the best and easiest tool to use for that.

E-learning as a support to the development of the learning system as a new teaching method, should be realised by gradual introduction to the existing curricula and programmes, and development of new curricula and programmes. Somebody should first look at the content of existing curricula and align it with the new, appropriate for realization with the use of the method of e-learning or combined methods.

There are a large number of sophisticated tools on the market, which are easy to use and learn. Thanks to them, it is possible to create the majority of the resources needed for learning, with only the basic usual IT knowledge.

### ***Cycles of electronic education***

In the opinion of Zemsky and Massey e-learning is adopted in 4 cycles:

- The *first cycle*, is made up of the improvement of the traditional configuration of the programme using new materials and devices, without changing teaching methods, (classic examples are the use of PowerPoint presentations when teaching, using the Internet for research purposes, using e-mail as a means of communication between the teacher and the students...)

- In the *second cycle* of integration of e-learning in the classroom, the new tools are used for managing the process of teaching (such as a software for distribution of teaching materials and tests, which should provide electronic communication between the teacher and the students, processing and tracking of learning outcomes, etc. ).
- In the *third cycle* of acceptance of e-learning for teaching purposes versatile learning objects designed by some standard are being made, exchanged and used (these learning objects can be of different nature - from purely textual documents with metadata, to technologically and content complex interactive simulations).
- In the *fourth cycle* of application of e-learning occur new programme configurations, which arise when teachers and institutions fully transform the learning activities and teaching. In order to fully utilise the benefits which are characteristics of the new technology, without the remains of the traditional classes, (one example would be a course designed as content and methodologically adaptable to knowledge and the needs of students in the simultaneous setting).

In which cycle of accepting the electronic methods of learning the teaching in the educational institution, in which they can use the appropriate hardware and software, will be, depends on the computer literacy and educational culture of teachers and students. At the same educational institution, there may be examples of the application that have reached the third cycle, along with a simple application integration at the level of the first cycle.

In an educational institution where there are very good examples of the application of the second cycle, also may be parts of the educational process that takes place by the recipe of traditional teaching, using only chalk and board in a nineteenth century-like classroom, that ignores the changes which have occurred in its surroundings. It can be said that they are expensive and very rare examples of the application specific to the fourth cycle of e-learning.

### ***Acceptance of innovation***

Acceptance of any innovation process is initially slow, but it accelerates with the emergence of dominant practical solutions. In each population, and not only among educators, there is evidence that the population can be divided into innovators who are looking for new ideas and implement the first experiments (a total of about 4%), technology leaders (about 15%), who show motivation to adopt new technologies based on the concept made by the innovators, early majority (about one third of the population), which uses the novelty when a dominant design has already been made and accepted, late majority (about one third of the population) that falls within the conservative part of the population and adopts new technologies with a significant delay, and a group of



traditionalists (about 15%) who still resist change even when it is proven that the proper method for the use of the innovation and its usefulness have been found. This theory is called the "S" curve of acceptance of innovations.

In the developed world, most educators are undergoing their first cycle of the acceptance of e-learning, technological leaders are undergoing the second and third cycle, while only a minority of innovators can boast with attempts to devise methods peculiar to the fourth cycle. In an environment that is scientifically and technologically ready for great discoveries, the world still awaits extraordinary talented educators who will, like Tesla or Einstein, completely change the view on education and educational practice of teachers. [23]

The Web has revolutionarily changed our way of interactivity, collection and publication of informations. It has a significant impact on the social interaction of the participants in the learning process and it creates an opportunity for creating personalised e-learning environments - PLE (*Personal Learning Environments*).

The development of Web 2.0 technologies represents more a social rather than technological revolution - there has been a change in the way of thinking and behaving by taking an active part in the process of content creation, through open applications and services.

### ***The contributions and advantages of the introduction of e-learning***

Higher education institutions are increasingly opting to support distance learning and are introducing an increasing and narrower number of specializations. The reasons are:

- Reduce costs of schooling;
- Assurance of internationally recognised quality of teaching;
- Shortening of the working processes of student services;
- The possibility of educational institutions making errors in their work has been reduced to a minimum;
- Support for the individual needs of students stemming from the vision of building their own personalities and careers;
- Acquisition of new knowledge does not depend on the location of teaching;
- Availability of all information in one place;
- Interaction with the participants in the long-distance learning (on-line communication with teachers / mentors who can help in the learning process, and other students);
- Constant availability of materials (you can repeat the material you want to learn unlimited number of times);

- Independently managing the time intended for learning (adjustment to the learning rhythm and responsibilities of an individual).

## **CONCLUSION**

Changes in the modern society, caused by the economic globalization, affect the development of education, particularly in the context of lifelong education. Reference framework of lifelong learning is based on eight key competences. Achievement of those competencies should enable the achievement of three main capital tasks which are essential for every individual and society as a whole:

- Cultural capital (personal fulfillment and professional development): achieving professional goals and personal preferences related to continuous learning;
- Social capital (active citizenship): creating opportunities to participate as an active citizen in the development of the society;
- Human Capital (employment): the ability of each individual to find and obtain a job in the labour market.

The introduction of lifelong learning in the teaching processes creates an incentive to acquire skills that lead to higher employment and the awakening of the spirit of entrepreneurship, innovates teaching, provides opportunities for creativities and new, more modern work methods, uses the advantages offered by new information technologies.

The society of knowledge in which almost all of the modern economies operate today, involves intensive use of modern information and communication technologies in all areas of business. ICT (knowledge and skills) are one of the key competencies and as such are recognised in all EU countries, the U.S., Australia and the neighboring countries. It is essential that digital competences (ICT) be recognised in Serbia. Situation and development of the ICT sector is conditioned by the existence of educational and expert personnel who can be innovative and creative only if they have an adequate educational system.

In the near future, educational institutions must embrace new technologies that allow for easier learning, distance learning, searching of encyclopedia knowledge bases, improvement of communication with the use of the latest network and Internet technologies.

From the standpoint of the legal basis, with the change in the Law on Higher Education, Higher education institutions should be allowed to teach in distance education (e-learning, online learning).

One way to modernise the educational process is with the introduction of e-learning in the classroom. E-learning is a combination of quality and progressive educational technology achievements. It is based on the principles of free learning,

with the use of computers in educational programmes and modern telecommunications - Internet for teaching Learning is organised as a process of dialogue in virtual classrooms. That means the separation of the mentor from the student in space or time.

E-learning is increasingly practiced in education systems and can be applied in any educational institution at all levels of education. The advantages that e-learning brings with the introduction of it in the educational process are primarily better educational programmes, student obtains a better idea of the concepts and facts, the speed of mastering the content and information on important concepts increases. Also, the students develop abstract thinking and individual progress in acquiring and expanding knowledge.

E-learning should be accepted as one of the teaching methods that can significantly contribute to the improvement of the quality of education. The result of the application of a modern method of learning will be that the individual will be able to have a sense for initiative and entrepreneurship, have the ability to convert ideas into action include creativity, innovation, risk-taking as well as the ability to plan and manage projects toward those goals. Entrepreneurship knowledge and skills help strengthen business opportunities in the wider social and economic context, including the ability to actively manage projects, presentation skills and negotiation skills independent work and team collaboration.

Teaching and learning with computers is more effective than traditional teaching in terms of quality and quantity of acquired knowledge, through mobility of an individual, his motivation for learning, as well as faster, more humane and equitable assessment and evaluation of work.

This paper presents the educational processes in Europe, looks at the educational processes in Serbia, through the introduction and recognition of informal forms of education, emphasizing the importance of digital literacy and stating the resources needed for the implementation of e-education. The advantage and importance of lifelong learning in education, with the introduction of innovative teaching methods by using modern information and communication technologies, were attempted to be explained with that.

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## ***NEW TECHNOLOGY IN THE PROCESS OF LIFELONG LEARNING OF WOMEN IN SERBIA***

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### ***Abstract:***

*Contemporary living and working environment requires the ability to find, access and present information very fast. In order to achieve all requirements every citizen must improve himself in the process of lifelong learning. In this paper we present concept of lifelong learning and new tendencies in education based on digital technologies that simplify process of adult learning. In addition, we analyze possible influence of modern technology on lifelong learning of women in Serbia. Results of the survey that we conducted suggest that unemployed women with elementary and secondary education are relatively less interested to continue education based on conventional or non-conventional methods and that they are not familiar with advanced learning tools. Having in mind that this group of women is by default the most vulnerable relative to the rest of women population, lack of ambition for lifelong learning and limited knowledge on new tendencies in education bring additional concerns about their vulnerabilities, which should be taken into account by the policy makers in order to implement policies on adult learning in more efficient and successful manner.*

***Key words:*** *Lifelong learning, adult learning, women, Serbia, emerged technology, education*

## ***INTRODUCTION***

The 21st century is characterized by complexity and pace of change taking place in the economy, technology, culture and other areas. These changes, and the process of globalization, require adaptation in the lives of men and women. One area which is very important is learning, because it has always been a major element in the progress of human society. Until recently, education and valuable books were great privilege of a small number of people, but today the knowledge is available to everyone. Additionally, we have faced changed conditions in the environment. Contemporary living and working environment requires the ability to find, access and present information very fast. In order to achieve all requirements every citizen must improve himself in the process of lifelong learning. Rapid development and diffusion of information and communication technology has enabled significant improvements in this area.

After the preliminary notes about the concept of lifelong learning and its significance in the modern society, we present the new trend in education, according to The Horizon Report 2011 (NMC, 2011) prepared by The New Media Consortium. This annual report is the result of cooperation between EDUCAUSE Learning Initiative (ELI) and the New Media Consortium. Consortium is dedicated to the research of the application of new technology in media and education.

According to this report there are three time frames in which we can expect a significant application of certain technological invention or time of adoption. We can distinguish short time adoption, within one year or less; medium time frame, within two to three years and long time frame, within four to five years. Last research shown that the e-books and mobile devices are in the short time frame, augmented reality and game-based learning are in the medium time frame and gesture-based computing and learning analytics are in the long time frame. In this paper we will show the characteristics of all these technological innovations and show their potential impact on the learning process.

Together with that in an era of increased awareness of the social responsibility these goals are very important. United Nations are monitoring the achievement of eight Millennium Goals (UN, 2012):

- Goal 1: Eradicate extreme poverty and hunger;
- Goal 2: Achieve universal primary education;
- Goal 3: Promote gender equality and empower women;
- Goal 4: Reduce child mortality;
- Goal 5: Improve maternal health;
- Goal 6: Combat HIV/AIDS, malaria and other diseases;
- Goal 7: Ensure environmental sustainability and
- Goal 8: Develop a global partnership for development.

Improvement of education, regardless the form can progress the process and reduce the time of achievement for all millennium goals. From the perspective of

our research the Goal 3 is the most important. It is very important to ensure equal education for women and for men. Accomplishing the millennium goals is at great extent influenced by women's empowerment and equal access by women to education, health care, work and decision-making. Achievement of that goal, will assure greater possibility for other goals to be achieved.

This paper has three parts. In the first part we present the concept of lifelong learning through the prism of OECD, European Commission and UNICEF documents. Also, we make the difference between formal, non-formal and informal type of education and the significance of adult learning. Second part is dedicated to digital technology trends in education according to Horizon Reports for 2011. For each driver, electronic books, mobile devices, augmented reality, game-based learning, gesture-based computing and learning analytics we explain the impact on learning with its advantages and disadvantages. In the last, third part of the paper we present *The Education Development Strategy in Serbia until 2020* and findings of survey conducted on a sample of women in Serbia.

## ***THE CONCEPT OF LIFELONG LEARNING***

Throughout human history the way of learning is constantly changing. From the oral transmission of knowledge, over handwritten books to the printed editions, technology has changed the educational process. However, in the last fifty years, based on the inventions in information and communication technology there has been a revolutionary transformation in this field. Today it is not possible to set the precise difference between places of knowledge acquiring (school) and the places of knowledge applying (workplace), but the learning is seen as an ongoing process based on daily mutual interactions. In such environment, one has the possibility for constant improvement of the knowledge and skills. That process is called lifelong learning.

World institutions like OECD and European Commission recognized the significance of lifelong learning and that concept became a major objective for policy making in order to achieve social and economic expansion and for development of knowledge based society.

European Commission defines lifelong learning as "all learning activity undertaken throughout life, with the aim of improving knowledge, skills and competence, within a personal, civic, social and/or employment-related perspective" (EC, 2007). Lifelong learning can be viewed in its broadest sense, and then it includes acquisition and improvement of skills, knowledge, qualifications and interests of each individual. This term can incorporate studying at prestigious international universities, but also learning how to make a pie from your grandmother. Therefore, lifelong learning includes not only the formal aspects of learning contained in the school system of each country, but also all forms of written and oral transfer of knowledge or skills. The objective of learning, according to this concept, is to achieve a sufficient level of competence that would allow any individual to successfully participate in the knowledge based society.

UNESCO (2009, p. 27) in its publication *Global report on adult learning and education* drew a distinction between formal learning, non-formal learning and informal learning as forms of lifelong learning.

Formal learning is the process of acquiring knowledge in institutions (schools, colleges, universities) in which the learning is according with structured objectives and the time required to overcome the curriculum, which lead to appropriate degree at the end of education. Formal learning is the cornerstone of education in every society.

Non-formal learning is the form of education that has characteristics of both formal and informal learning. Such as formal learning, this form involves institutionalized teaching, strict objectives and time, but has not been formally identified and does not result in a degree. Main forms of non-formal learning are courses, trainings, workshops and seminars. It is significantly present in the process of continual professional development. At the end of the successfully completed course, participants often receive some kind of certificates.

The most widespread form of learning is the third one – informal learning. This form does not imply educational institutions. It is more or less spontaneously acquiring of any kind of knowledge in, for example home or work place, through interaction with other members of society. We can also recognize intentional and non-intentional sub-forms of informal learning. Process of informal learning begins with the birth and continues until the end of one's life.

The lifelong learning can be seen as a complex concept, and in that case include: adult education, knowledge work, like professional development through trainings in the workplace, home schooling, continuing education and personal learning environment (Aspin, Chapman, 2007, p. 54). In this paper, we will focus on adult learning as a form of lifelong learning.

Definition of adult learning varies but nevertheless we can consider it as phenomenon that has received particular importance in the modern environment characterized by rapid change, globalization and technological advances. It is important both on individual and on a general level. For adult individuals it provides adequate skills, which are necessary for personal or family prosperity. On a general level, it plays an important role in preventing diseases and improving the overall health, poverty reduction, environmental protection, reducing the differences between genders, etc.

According to andragogic theory (Knowels, 1980), adults are motivated to learn, self-directed, responsible, and use prior experiences as a template for learning. Andragogy is based on the assumptions that adult:

- Tend to become more self-directed as they mature;
- Have had rich life experiences;
- Want to learn and are internally motivated to do so;
- Want learning to be purposeful, practical, relevant, and immediately applicable; and
- Are more problem-centered than content-centered.

A sixth assumption was later added: Adults need to understand why they are learning a particular topic.



According to The Recommendation on the Development of Adult Education (UNESCO, 1976) lifelong education is a complete scheme with two objectives. One is the reconstruction of the existing education system, and the other one is exploiting of the educational potential in which the men and women are motivated to self-complementary knowledge. To achieve these goals the learning process needs to be expanded. The original concept which included school attendance now represents only the first phase of education, and people should continue to acquire skills and knowledge throughout their lives, with the use of all available resources. In this concept, the most important premise is to provide conditions for all people in which they are able to achieve the full development of his personality.

Adult learning is constantly evolving, under the influence of linked factors of global cultural and economic changes like (Hed&McGrew, 2000, p. 301): constant development of information and communication technology, developing of world global market, increase of people's mobility and migration and global changes in social systems and more democratic orientation worldwide. Ecclestone (1999, p.333) also find that there is a significant impact of external factors on the development of adult learning, like need for economic survival and social cohesion, as a part of idea of human capital.

European Union is also aware of the importance of lifelong learning and in the document *Adult Learning: It is Never Too Late to Learn* (2006), Commission of the European Communities emphasizes this phenomenon and its importance in overcoming challenges. This is primarily related to:

- Competitiveness. Swift progress in some countries, like China and India point out the need for quality and advanced education and trainings, as a foundation of adequate workforce supply in the labour market. According to this report (CEC, 2006, p. 3) there are some 72 million low-skilled workers in Europe, one third of the labour force, while estimates show that by 2010 only 15% of newly created jobs will be for those with low skills, and 50% of new jobs will require tertiary level qualifications.
- Demographic change. The most important demographic trend in Europe is ageing of population. The consequence of this tendency is reduced flow of young people in labour market, and results shows (CEC, p. 4) that “only one in every three persons aged 55–64 years is in paid employment, point to an obvious need to employ the full potential of adult learning with a view to increase the participation in the workforce of young people and extend that of older people”. One way to overcome the weaknesses of workforce is active immigration policy, but this process requires adequate system to ensure lifelong and especially adult learning.
- Social inclusion. The third challenge is poverty and exclusion. This phenomenon is result of inadequate level of primary education, separation and isolation in rural areas, unemployment and huge number of marginalized people with reduced chances for life opportunities. Development of ICT even aggravates the situation, because a large number of adults in this population are illiterate or insufficiently trained and therefore unable to use these devices. In this case, the development of lifelong and adult learning can also significantly improve the situation.

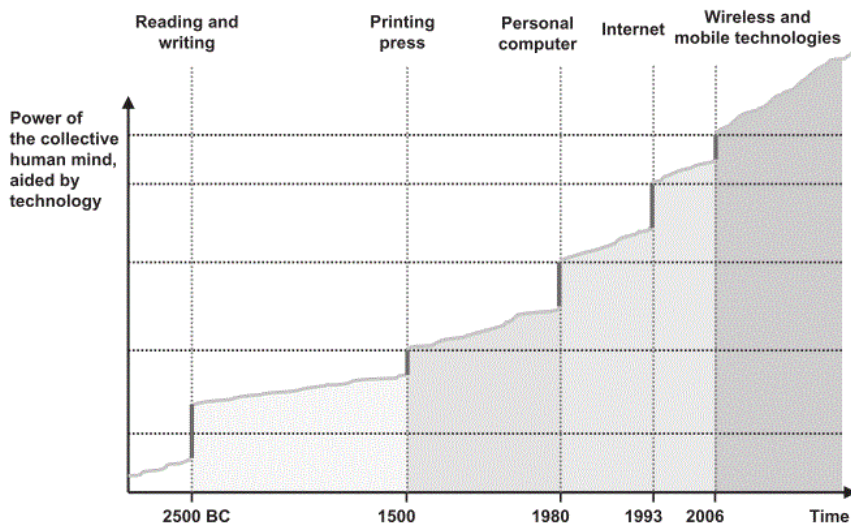
Based on the above we can conclude that lifelong learning and adult learning as a part of it plays an important role whether we look from the individual or social perspective, and has great potential which is not yet being reached.

## ***DIGITAL TECHNOLOGY TRENDS IN EDUCATION***

Implementation of digital technology facilitates and enhances many areas of human life. The educational process is also an area where the use of these technologies improves the performance of both teachers and learners. Besides that, digital technology increased the value of information-rich time and the corresponding reduction in the value of “labour-only” time. (Strain, 1998, p. 266).

The appearance and global use of the Internet and World Wide Web services provided learning opportunities that were previously impossible or even unimaginable. Fletcher et. all. (2007, p. 97) point out that digital, sharable, and reusable entities can be used for learning and are available to learners anytime, anywhere due to modern technology.

*Figure 1. Development of the collective human mind*



*Source: Fischer & Konomi, 2007, p. 340.*

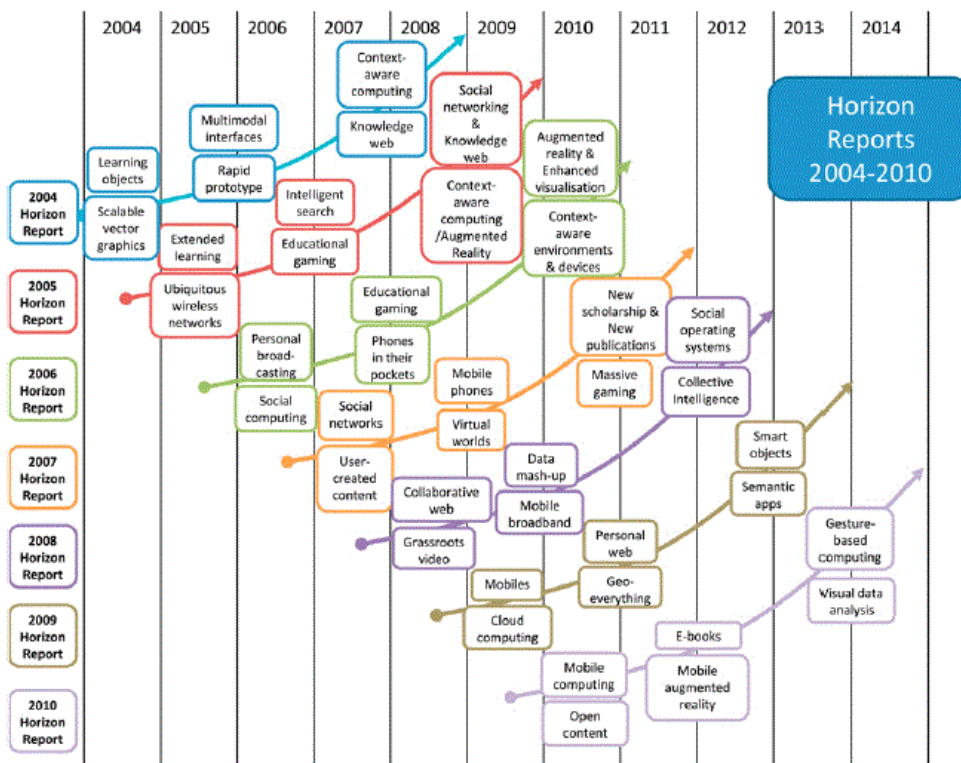
Figure 1 shows the development of the collective human mind. We can clearly notice the most important steps, from reading and writing, through printing press, up to the appearance of personal computers, Internet and wireless and mobile technologies.

## *Horizon Report*

The Horizon Report is being prepared by The New Media Consortium. This annual report is the result of cooperation between EDUCAUSE Learning Initiative (ELI) and the New Media Consortium. The NMC Horizon Project, as the center point of the NMC Emerging Technologies Initiative, conduct research of emerging technologies for teaching, learning, research, creative inquiry, and information management. The first report was published in 2002, and since then they prepared five reports (Horizon Report: Higher Ed Education, Horizon Report: K-12 edition, Horizon Report: Museum Edition, Technology Outlook, NMC Horizon Report Press) each year.

Martin et. al. (2011) in his paper *New technology trends in education: Seven years of forecasts and convergence* introduced a chart (Figure 2) which present constant changing of technology implemented in learning over a time line, from 2004 until 2010.

**Figure 2.** *Impact of technologies on education according to the Horizon Reports from 2004 to 2010*



*Source: Martin, et. all., 2011, p. 1895.*

From Scalable vector graphics and Knowledge webs in 2004, through Intelligent search, Phones in their pockets, up to Social networking, Cloud computing and visual data analysis in 2010, technology always had an impact on learning process. In this paper we will present the key trends in this area according to the 2011 Report.

### ***Key technological trends and their implications to the learning process***

The Report presents six key trends divided into three groups according to adoption time. On the near-term horizon, within one year or less the key trends are Electronic books and Mobiles. Mid-term horizon covers period of two to three years and Augmented reality and Game-based learning are the main trends. The longest horizon implies a period between four to five years and Gesture-based computing with Learning analytics are the key representatives.

#### *Electronic books (e-books, eBooks, digital books)*

Electronic books are digital publications with text, images, films hypertext links and RSS which can be readable with PC computers, tablet computers like *iPad*, smart phones or other specialized device like e-book reader *Amazon Kindle*. Electronic books are changing the perception of what it means to read, because flipboard makes material more interesting and more easily acceptable by the reader.

According to Fourth Annual World eBook Fair readers all over the world have access to more than two million electronic books, and thanks to mobile connection they do not have to storage necessary books. The other advantage is that reader can automatically choose any required language or in the case of dyslectic disorder electronic books can be supplemented with text-to-speech option. Those books are much cheaper than traditional books, both for publishers and customers. Digital books need to be generated only once and it can be distributed to an infinite number of times, without a risk of loss.

Although electronic books provide a number of advantages, it is necessary to draw attention to several shortcomings. Electronic book readers require money investment for device and for programs which have to be compatible with user's computer or other devices. User also needs to provide patching for security vulnerabilities and anti-virus, anti-malware and spy-ware. It may arise out incompatibility problem between format of electronic book and electronic book reader. Electronic book reader must have power supply and can cause eyestrain.

In academic environment there are limitations and they are a lack of academic titles, lack of technical conditions that could support this type of literature, publishing titles restrictive model and digital rights management (Horizon Report, 2011, p. 9).

### *Mobile devices*

It is believed that the so-called mobile revolution began, because more and more people use mobile devices to access the Internet. These devices represent significant competition computers in this domain. Moreover, mobile devices are continuously developed and constantly provide access to networks that are convenient and reliable, significantly improved their features, which makes them more reliable and easier to use, less expensive than the standard PC or notebook. Moreover, today people need to stay connected through social media, and mobile devices offer the possibility of continuous contact. The most important devices in this group are cell phone and tablet.

According to Horizon Report (2011, p. 13) mobile devices are the convergence of few technologies that can be useful for education, including apart from electronic book readers, annotation tools, applications for creation and composition, and social networking tools. They can record images, video, sound, take notes, use GPS technology and mapping software to record information essential to their coursework. These features can be very helpful for learning process.

Shortly after the mass acceptance of mobile devices, particularly mobile phones, many countries prohibited their use in schools. Today the situation has changed, but this is still a very controversial topic with numerous pros and cons. In some cases mobile devices can be disturbing factor during the class. Cell phone might ring or students can constantly receive text messages or they can even follow some contents like public network, films, music, games etc. One of the disadvantages is great potential for cheating with them.

### *Augmented reality*

A visual augmented reality system enhances or augments the surroundings of the user with virtual information that is registered in 3D space and seems to coexist with the real world (Azuma et al., 2001, p. 34) Augmented reality utilizes the camera or GPS built in smart phones or computers to gather the information about the world and then uses these devices with internet connection to get additional information about those things and finally renders that information on computer device in 3D as if they are in the environment around us. Practically it is a concept of merging media (3D graphics, pictures, video and sounds).

This is emerging technology but it will have a huge impact on the way that people learn, because this technology has unlimited potential for learning process. In some extent it can be seen as portal to another dimension. In Figure 3. we can observe the transition between the real world and virtual world through augmented reality and augmented virtuality.

**Figure 3.** *Milgram's reality-virtuality-continuum*



*Source: Azuma et al., 2001, p. 34*

Further development of mobile devices and easy access to reliable and high-speed networks are the most important condition for the development of this advanced technology. The use of augmented reality is expanding daily, and regardless of predominantly use for marketing, entertainment and tourism, its application for teaching can be exceptional. It is most suitable for visual and highly interactive forms of learning, allowing the overlay of data onto the real world as easily as it simulates dynamic processes. The basic concept using this technology in learning relies on the ability to provide to learners experimental and location-based learning, as a substitute for the real world. Augmented reality has the ability to transfer learner from enclosed spaces (classrooms) to any imaginary space, which provides endless benefits for learning.

#### *Game-based learning*

The potential of new game-based technologies have brought a whole new perspective in the learning process. This way of learning is an alternative that transferred receiving the knowledge in virtual world, with all informal environment performance settings. The space can be adapted to each learner individually, which puts him in the limelight, creating more convenient environment which makes learning more effective.

Games have always played a role in learning, since the form of simple paper-and-pencil games. Today, a selection of games that can be used for educational purposes is large. They can be designed for one player, but also for small or large groups and can be divided in the massive multiplayer games and role-playing games. Educational games can be broadly grouped into three categories: games that are not digital; games that are digital, but that are not collaborative; and collaborative digital games (Horizon Report, 2011, p. 20). They can be easily integrated in the course content and enhance problem solving, leadership, cooperation, research, public speaking, writing, digital literacy, innovation and procedural thinking of learners.

#### *Gesture-based computing*

Gesture-based computing is a type of technology that enables interaction between the human body and computer without the use of a standard interface, the mouse and keyboard. The most popular device of this kind are the Nintendo Wii and Xbox, but technologies such as Kinect, SixthSense and Tamper developed far more intuitive devices.

It is obvious that these devices found their first application in games and file browsing, but the possibilities are much wider. In education, their application would be ideal for training and simulation. Horizon Report (2011, p 25) states that gesture-based computing has strong potential in education, both for learners, as they will be able to interact with ideas and information in new ways, and for teachers, for exploration of new ways to communicate ideas. It also has the potential to transform the methods for sharing ideas.

### *Learning analytics*

Generally the amount of data is constantly growing with incredible speed, and their processing and analysis are becoming an increasing problem. Generally the amount of data is constantly growing with incredible speed and processing and analysis are becoming an increasing problem. This is particularly evident in the field of education, where there is a discrepancy between user-generated data in the process of material access or in the communication with teachers (e.g. logs in the system) and their use in order to improve the teaching process. The problem can be solved by using adequate analytics system. Beside that these systems support all sort of analysis of student performance, progress in practice and engagement.

With analytics and data mining experiments in education starting to proliferate, sorting out fact from fiction and identifying research possibilities and practical applications are not easy. This issue brief is intended to help policymakers and administrators understand how analytics and data mining have been - and can be - applied for educational improvement (US Department of Education, 2012, p. 8).

## ***ADULT LEARNING OF WOMEN IN SERBIA***

In Serbia, according to *An overview of the labor market in Serbia* (Arandarenko, Nojkovic, 2007, p. 26) two million people over the age of fifteen do not have adequate working and living skills and competencies, and as a result of that many of them have significant difficulties to find or keep a job. Unemployment, especially labor market rigidities (lack of programs that meet the demands of the labor market for specific knowledge and skills, career counseling and guidance system for recognition of competences and qualifications and active employment) is one of the primary obstacles to overall sustainable socio-economic development. The adult education system inherited from socialism, based on the concept called *radnički univerziteti* (workers' universities or vocational colleges) fell apart in the nineties. However, the empty space is still not adequately filled.

The target groups of adult education in particular should include illiterate persons without primary education, people without jobs and qualifications; unemployed; technological surplus; employees, particularly groups that are at risk of losing their jobs, entrepreneurs and the people who start a business; persons with disabilities; ethnic minority groups, particularly Roma, women and rural population.

In October 2012 Government of Serbia adopted *The Education Development Strategy in Serbia until 2020*. The mission of the Serbian education system in the 21st century is to provide the basic foundation of life and the development of each individual, state and society based on knowledge.

Full acceptance of (a) the role that education must play in the economic, cultural, social, political, democratic and other development and improvement of strategic, cooperative and competitive capacity and position of Serbia in the contemporary world, especially in the European Union, and (b) on the basis of the current the state of education in Serbia, which is in many ways very unsatisfactory, identified the following key long-term goal of education.

1. Increasing the quality of processes and outcomes of education to the maximum possible level.
2. Increasing the coverage of the Serbian population in all levels of education from pre-school education to the creation of conditions for lifelong learning.
3. Achieving and maintaining the relevance of education by the structure of the educational system is directly aligned with the developmental needs of individuals, economic, cultural, research, education, public, administrative and other systems.
4. Increasing the efficiency of resource education, and completion of education on time, with minimal extension of the reduced dropout.

Part of the Strategy devoted to adult education has two key objectives: scope and relevance. Strategic focus is that, by 2020 less than 7% of the adult population in the Republic of Serbia is covered by adult education programs.

To achieve this goal, the following measures are defined:

- Develop a broad network of formal and informal education providers of adult education programs that operate under the same conditions and standards;
- Develop programs of adult education, vocational education and training, particularly short (part time) programs for adults, short courses up to 30 ECTS, and *special programs for vulnerable groups*;
- Develop career guidance and counseling adults by providing assistance in understanding and interpreting the information, the desire to discover opportunities and needs when it comes to careers and further professional training.



Strategy anticipated the following measures:

- Adult education is a correction of the regular education system, an innovative and flexible enough to adapt to the changes and demands of new technologies and sustainable development;
- A system for monitoring the labor market is based on the development of social dialogue through partnerships with relevant stakeholders (government, employers, local authorities, non-governmental organizations, trade unions);
- Modularization education and training program is conducted under the expressed needs of the labor market;
- Ensure that the flexible learning paths may be different qualifications that will be recognized by the National Qualifications systems and national systems of vocational qualifications that are compatible with the European Qualifications Framework for lifelong learning;
- To develop by 2020 the unique system for the recognition of prior learning to competency and qualifications acquired through practice and additional training to recognize and certify in accordance with the national qualifications system.

One of the vulnerable groups particularly distinguished in the Strategy is women in Serbia and their education in the context of employment. In order to examine current familiarity with contemporary learning tools and their wiliness for continuous learning we conducted the research based on the survey which encompasses 118 women in Serbia aged from 30 to 65 years, randomly sampled. Sample is regionally diversified in order to avoid possible biases that could exist regarding the differences in regional development in Serbia.

Our sample included women aged 43.5 in average and the 72.2% of them are employed. Regarding the level of education 13.9% have elementary education, 52.8% secondary, 11.1% bachelor level and 22.2% have faculty education.

After introductory questions we ask them about their habits in the computer using. The answers shows that 75% use Internet frequently, 83.3% has unlimited availability to use computer, while 41.7% has smartphone or tablet computer.

Almost half of respondents (47.2%) expressed an intention to continue further education and in Figure 4. we present the reasons for abandoning further education (percentage relative to number of women not planning to continue education).

**Figure 4. Reasons for abandoning further education**

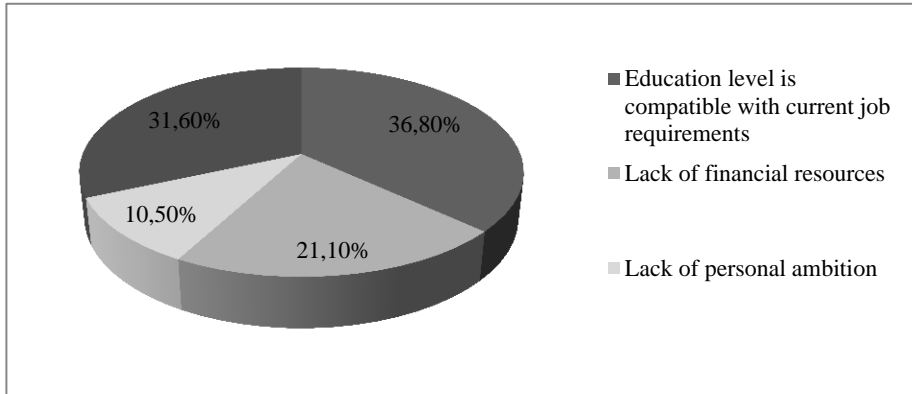


Figure 5. shows which method of education respondents would use for further education (percentage relative to number of women planning to continue education). According to results, most of the women, over 70% are interested in informal way of education and most of them are familiar with the possibilities of further formal (66.7%) and informal (63.9%) education through internet.

**Figure 5. Method for further education**

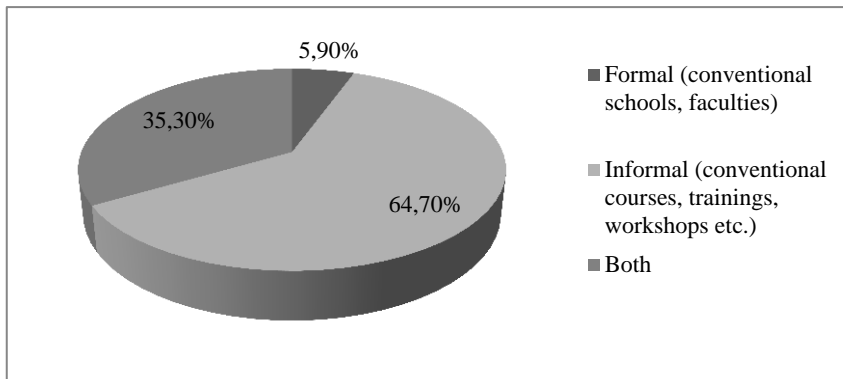
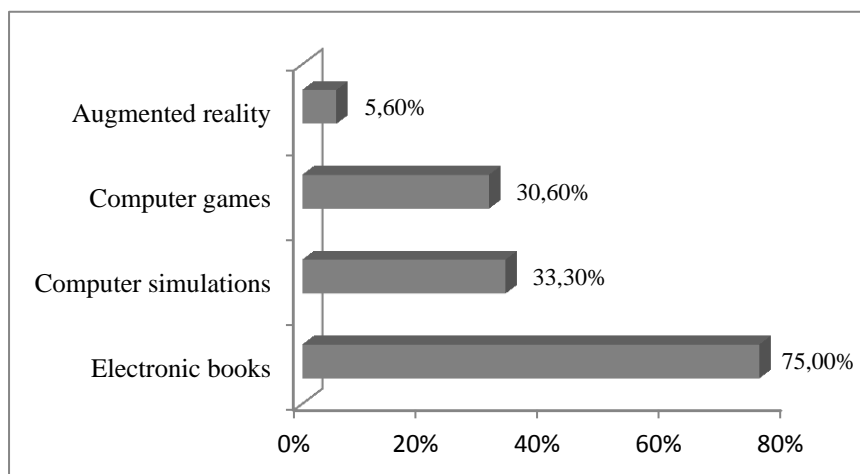


Figure 6. contains the answers on the question about familiarity with learning tools highlighted in the Horizon Report. The 75% of respondents are familiar with electronic books, while only 5.6% heard about augmented reality.

**Figure 6.** *Familiarity with learning tools*

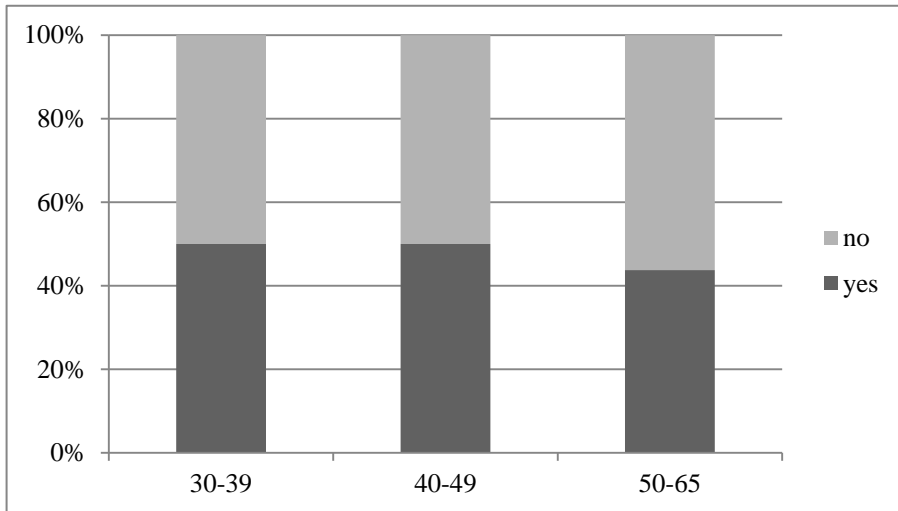
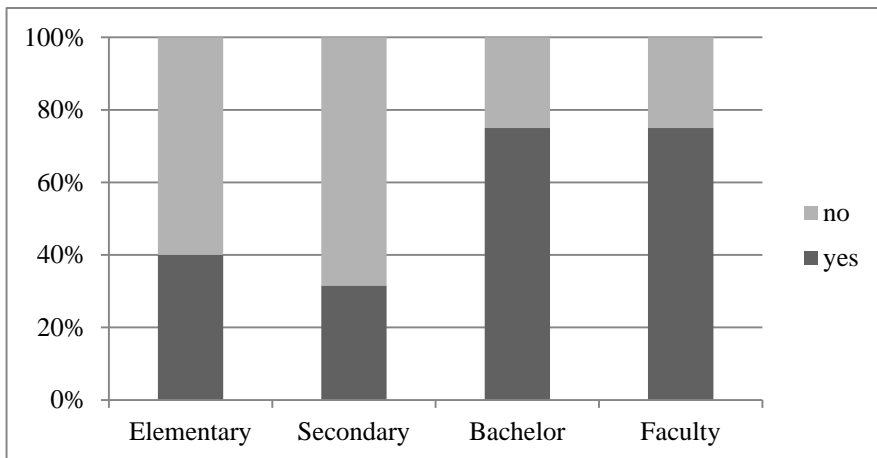


Based on the survey we can also conclude that the women (63.9%) would have additional motivation for further education if advanced technology brings faster and easier approach to learning relative to conventional learning using hard copy textbooks.

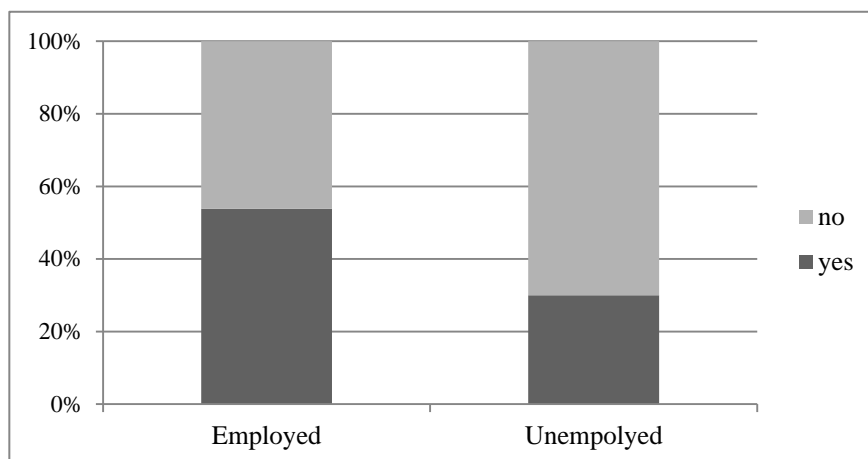
We were further interested to find out whether age, employment or current level of education influence the preferences of women to further education and their knowledge about new tendencies in education. Thus, we did several breakdowns of the sample explore relationships between mentioned variables, more specifically:

- age/employment and further education plans
- level of current education and further education plans
- level of current education and familiarity with learning tools
- age/employment with motivation for advanced-technology-based learning

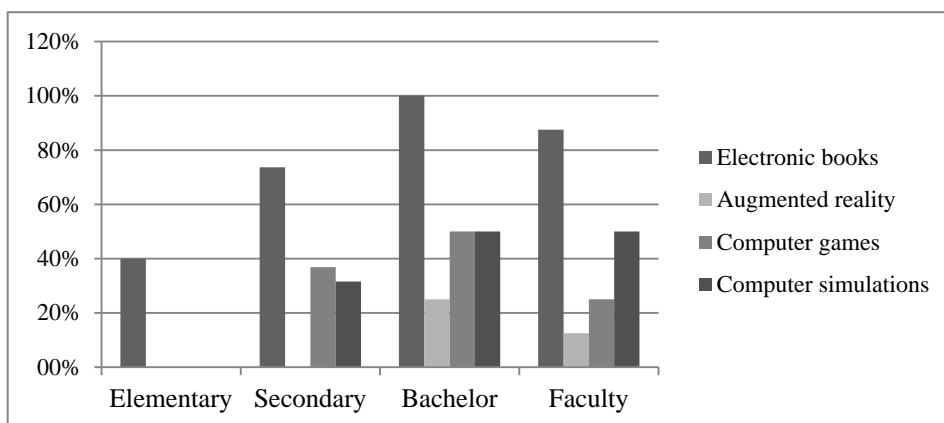
Figure 7. and 8. show breakdown of further education preferences in regard to the age and current education, respectively. We do not perform any formal statistical test due to relatively low respondents in the sample, however descriptive analysis shows that age seems not to affect significantly further education planning. On the contrary, education seems to affect these preferences significantly, as the respondents with higher level of education clearly exhibit higher willingness to continue education.

**Figure 7.** Age breakdown of further education preferences**Figure 8.** Current education breakdown of further education preferences

In addition, we do the same breakdown in regard to the job status, presented in Figure 9. Similar to level of current education, job status tends to affect education preferences in the same manner, i.e. employed women exhibit higher level of willingness for further education.

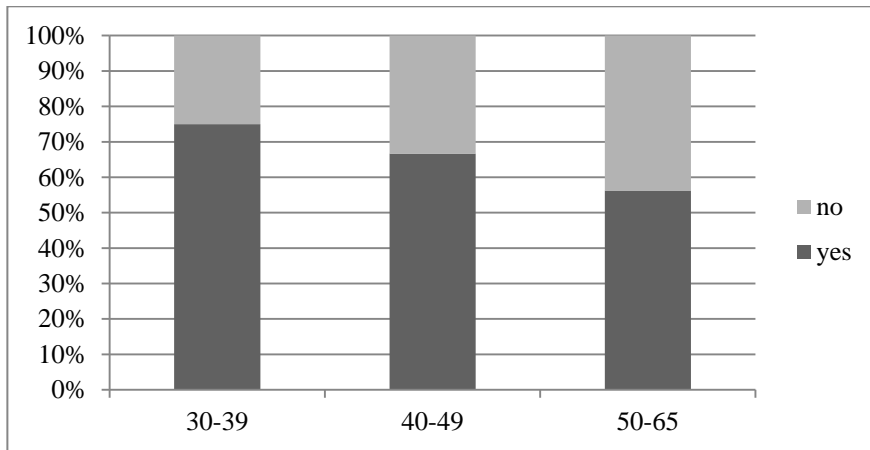
**Figure 9.** *Employment breakdown of further education preferences*

Further on, we look at the breakdown of familiarity with new tendencies in education, i.e. advanced electronic tools with respect to current education level. It suggests that women with college or university degree are far more familiar with these concepts relative to less educated women, especially to women with only elementary education, as shown in Figure 10.

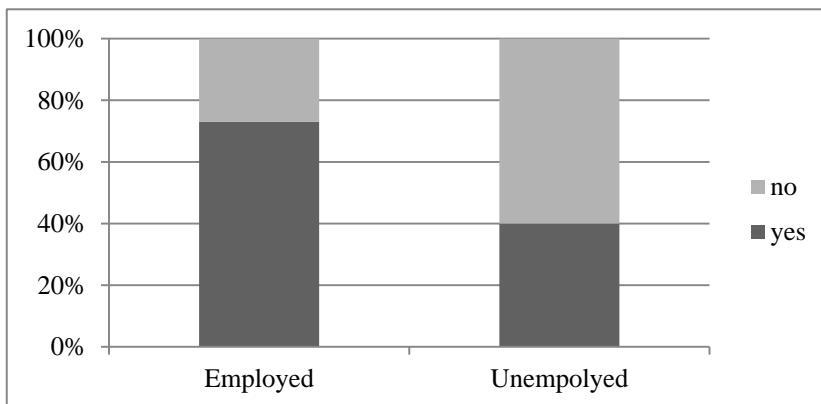
**Figure 10.** *Current education breakdown of familiarity with (electronic) learning tools*

Finally, we analyze women' motivation to continue education by utilizing the benefits that advanced learning tools bring about, in regard to age and job status. Similar to general preferences for further education, it seems that age does not affect this kind of motivation, as shown in Figure 11. Opposite, Figure 12. suggests that unemployed women are not motivated to continue education even if they knew that it would be realized in time and effort saving manner.

**Figure 11.** Age breakdown of the motivation for advanced-technology-based learning



**Figure 12.** Employment breakdown of the motivation for advanced-technology-based learning



Taking all into account, this simple analysis shows that in general age seems not to play significant role in preferences for lifelong learning of Serbian women, while job status and current level of education have strong influence. More specifically, conclusions suggest that unemployed women with elementary and secondary education are relatively less interested to continue education based on conventional or non-conventional methods and in addition that they are not familiar with advanced learning tools. Having in mind that this group of women is by default the most vulnerable relative to the rest of women population, lack of ambition for lifelong learning and limited knowledge on new tendencies in education bring additional concerns about their vulnerabilities, which should be taken into account by the policy makers in order to implement policies on adult learning in more efficient and successful manner.

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## ***CONCLUSION***

In this paper we tried to present the possible influence of modern technology on education of women in Serbia. After the introduction we gave a brief explanation of lifelong learning and adult learning process concepts and its possible impact on World millennium goals. In the second part we presented achievement of contemporary technology according to the Horizon Report 2011 and its effects on the learning process. We covered all relevant technologies: electronic books, mobiles, augmented reality, game-based learning gesture-based computing and learning analytics and emphasized the most important advantages and disadvantages for each of them in education.

The third part is dedicated to education in Serbia with the special reference to adult learning of women. In order to examine current familiarity with contemporary learning tools and their willingness for continuous learning we conducted the research based on the survey which encompasses 118 women in Serbia aged from 30 to 65 years, randomly sampled. Sample is regionally diversified in order to avoid possible biases that could exist regarding the differences in regional development in Serbia.

Taking all into account, this simple analysis shows that in general age seems not to play significant role in preferences for lifelong learning of Serbian women, while job status and current level of education have strong influence. More specifically, conclusions suggest that unemployed women with elementary and secondary education are relatively less interested to continue education based on conventional or non-conventional methods and in addition that they are not familiar with advanced learning tools. Having in mind that this group of women is by default the most vulnerable relative to the rest of women population, lack of ambition for lifelong learning and limited knowledge of new tendencies in education bring additional concerns about their vulnerabilities, which should be taken into account by the policy makers in order to implement policies on adult learning in more efficient and successful manner.

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# **HIGHER EDUCATION DISTANCE LEARNING INSTRUCTIONAL CONTENT STRUCTURE DESIGN**

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## **Abstract:**

*In the modern information society, significant growth of relevant information in terms of amount and rate of change concerns almost every aspect of human life and occupation. Such a way of living definitely promotes structuring and organization of learning as its essential activity. Learning efficiency relies on continual processing and structuring of new facts, rapid reasoning on their relevance, experience-based reflection to construct one's own knowledge, and on effectively dumping obsolete information. Learning efficiency, structuring and organization can be best achieved by means of information and communications technology (ICT). ICT allows for permanent, life-long, just-in-time (WHEN necessary), contextual, in-place, distance, and informal education (WHAT, WHERE necessary). User-friendly integration of corporate, school, and academic e-learning administrative and instructional functions is provided by learning management system (LMS) web applications, such as Blackboard, ILIAS or Moodle. Distance learning instructional content structure design (DLICSD) imposes standard methodology for e-instruction preparation, thus forming the foundation for entire organization. In this paper, based on experiences of the successful implementation, DLICSD issues are analyzed in terms of LMS tool sets, accreditation standards, learning field, and instruction specifics, and a versatile Moodle-based DLICSD model is proposed, acceptable for courses in both social and technology science fields.*

**Key words:** *instructional content, structure design, higher education, distance learning, Moodle*

## INTRODUCTION

In a modern information society, significant growth of relevant information in terms of amount and rate of change concerns almost every aspect of human life and occupation. For instance, over 90% of the relevant literature in many technical fields, such as biotechnology, astronomy, computers and software, and environmental sciences, has been produced since 1985. It is estimated that 40 exabytes ( $4 \times 10^{19}$  bytes) of unique new information is generated worldwide for one modern year, that is more than for previous 5000 years.

Traditional programmatic approaches to education simply cannot keep up with such dynamic and abrupt changes. The amount of new technical information is doubling every two years. For students starting a four-year technical or college degree, this means that half of what they learn in their first year of study will be outdated by their third year of study. According to former American Secretary of Education Richard Riley, 'the top 10 in-demand jobs in 2010 did not exist in 2004'. Or, that said another way, we are currently preparing students for jobs that do not yet exist, using technologies that have not been invented, in order to solve problems we do not even know are problems yet... There are increasing signs that our current paradigms for higher education, the nature of our academic programs, the organization of our colleges and universities, and the way that we finance, conduct and distribute the services of higher education may not be able to adapt to the demands of our time. While there is a great deal of business literature on companies that have "restructured" and "re-engineered" to respond to new competitive threats and rapidly changing market conditions, *universities are generally regarded as being stubbornly resistant to change* as a result of the typically conservative and reactionary pressures, both internal and external to the organization. In many universities the development of web-based initiatives is not systemic, but is often the result of random acts of innovation initiated by risk-taking individual academics.

Hence, technology is not just a *possibility* to enhance learning, but the *demand* to adequately respond in such an ever-increasing and ever-changing informational environment, established by the technology itself. In both developed and developing countries, the Internet will provide the only viable cost-effective conduit through which corporations and educational institutions will be able to provide access to ongoing opportunities for the continuing professional development of working individuals. As famous marketing theorist and practitioner Peter Drucker said in 1991: "The single greatest challenge facing managers in the developed countries of the world is to *increase the productivity of knowledge and service workers.*"

Along with those online-learning organizational issues, there are also many pedagogical aspects that should be considered to effectively and efficiently establish, organize, and perform instruction in the online environment. Learning

efficiency, structuring, and organization can be best achieved by means of information and communications technology (ICT). ICT allows for permanent, life-long, just-in-time (WHEN necessary), contextual, in-place, distance, and informal education (WHAT, WHERE necessary). This paper is an attempt to emphasize various pedagogical and organizational aspects, focused on instructional content structuring, including learning theories, curriculum and instructional design, adaptability, and some standards imposed by accreditation committees or technological practice (ex. SCORM).

## ***PEDAGOGICAL FOUNDATIONS - CONTRIBUTIONS OF LEARNING THEORIES TO THE E-LEARNING ENVIRONMENT***

In order to obtain an effective and efficient approach to e-learning content design and structuring, the following standpoint should be accepted: 'E-learning represents improvements of learning and teaching process by means of technology', thus emphasizing the assistance of technology to pedagogy in promoting the common goal: efficient learning. According to its purpose for pedagogy, technology tools could be classified into two groups:

1. Technology 'in e-learning',
2. Technology 'for e-learning'.

*Technology 'in e-learning'* represents all generic tools that have not been designed on purpose for some pedagogical application, but could be used (in some extent, at least for some segment of) *in e-learning* organization process. For instance, such tools are text processing, or presentation, graphical, mind-mapping and multimedia design applications.

*Technology 'for e-learning'* comprises all tools dedicated exclusively *for e-learning*, designed for specific pedagogy features. To design a technology 'for learning' tool, one should carry out an extensive survey of modern ICT facilities and learning theories as well that take into account possibilities for application of technology in learning. The more cycles of studying mutual impacts on these two aspects, the more effective and efficient design of learning and instruction would be.

In (Mayes & de Freitas, 2006, pp. 5), four distinct levels of studying pedagogy are devised, as follows:

1. Theories of learning,
2. Pedagogical frameworks,
3. Models of e-learning,
4. Taxonomy.

*Theories of learning* provide empirically-based accounts of the variables which influence the learning process, and provide explanations of the ways in which that influence occurs.

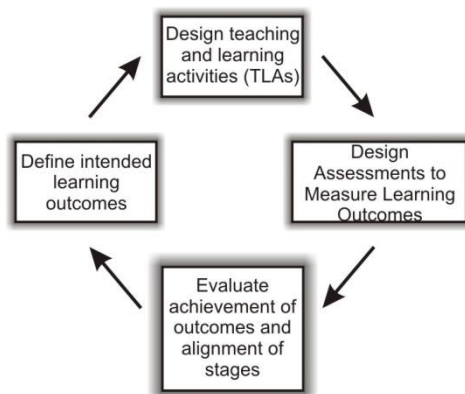
*Pedagogical frameworks* describe the broad principles through which theory is applied to learning and teaching practice.

*Models of e-learning* describe where technology plays a specific role in supporting learning. These can be described both at the level of pedagogical principles and at the level of detailed practice in implementing those principles.

*Taxonomy* in this context proposes a mapping of the theories of learning, the pedagogical frameworks, and the models of e-learning.

(Biggs, 1999) describes the task of good pedagogical design as one of ensuring that there are absolutely no inconsistencies between the curriculum we teach, the teaching methods we use, the learning environment we choose, and the assessment procedures we adopt. To achieve complete consistency, we need to examine very carefully what assumptions we are making at each stage and to align those (Fig. 1). Thus, we need to start with carefully defined intended learning outcomes, we then need to choose learning and teaching activities that stand a good chance of allowing the students to achieve that learning, then we need to design assessment tasks which will genuinely test whether the outcomes have been reached.

**Figure 1:** Diagram of the curriculum design cycle (Biggs, 1999)



(Greeno, Collins & Resnick, 1996) identified three clusters or broad perspectives in learning theories, which make fundamentally different assumptions about what is crucial for understanding learning. These are:

1. The *associationist/empiricist* perspective (**learning as activity**),
2. The *cognitive* perspective (learning as achieving understanding),
3. The *situative* perspective (**learning as social practice**).

In the *associationist/empiricist perspective*, knowledge is an organized accumulation of associations and skill components. Learning is the process of connecting the elementary mental or behavioural units, through sequences of

activity. This view encompasses the research traditions of associationism, behaviourism and connectionism (neural networks). Associationist theory requires subject matter to be analysed as specific associations, expressed as behavioural objectives. This kind of analysis was developed by (Gagné, 1985) into an elaborate system of instructional task analysis of discriminations, classifications and response sequences. Learning tasks are arranged in sequences based on their relative complexity according to a task analysis, with simpler components as pre-requisites for more complex tasks. The neural network approach suggests an analysis of knowledge in terms of attunement to regularities in the patterns of activities, rather than in terms of components, as traditional task analysis requires. In this perspective, learning is the formation, strengthening and adjustment of associations, particularly through the reinforcement of particular connections through feedback. One implication is the individualising of instruction, where each student responds actively to questions or problems and receives immediate feedback on their response. This has underpinned the development of programmed instruction and computer programmes that teach routine skills. The shaping of responses through selective reinforcement relates to instruction-by-approximation (in classroom contexts skilled teachers provide encouragement as students achieve better approximation to the required patterns of performance). Sequences of instruction are designed for students to be able to succeed by learning in small and logically-ordered steps. Although behaviourism is currently widely dismissed as a serious theoretical basis for education, and mistakenly often associated with a teacher-centred model of learning, this view is seriously wide of the mark. Behaviourism was centrally concerned to emphasise active learning-by-doing with immediate feedback on success, the careful analysis of learning outcomes, and above all with the alignment of learning objectives, instructional strategies and methods used to assess learning outcomes. Many of the methods with the label “constructivist” - constituting the currently accepted consensus on pedagogy amongst educational developers in higher education – are indistinguishable from those derived from the associationist tradition.

*The cognitive perspective* emerged as part of a general shift in theoretical positioning in psychology starting in the 1960s. Learning, as well as perception, thinking, language and reasoning became seen as the output of an individual’s attention, memory and concept formation processes. This approach provided a basis for analyzing concepts and procedures of subject matter curricula in terms of information structures, and gave rise to new approaches to pedagogy. Within this broad perspective, particular sub-areas of cognitive research can be highlighted as particularly influential, e.g.: schema theory, information processing theories of problem solving and reasoning, levels of processing in memory, general competencies for thinking, mental models, and metacognitive processes. The underlying theme for learning is to model the processes of interpreting and constructing meaning, and a particular emphasis was placed on the instantiation of models of knowledge acquisition in the form of computer programmes. Knowledge acquisition was viewed as the outcome of an interaction between new experiences and the structures for understanding that have already been created. So

building a framework for understanding becomes the learner's key cognitive challenge. This kind of thinking stood in sharp contrast to the model of learning as the strengthening of associations. The cognitive account saw knowledge acquisition as proceeding from a declarative form to a procedural, compiled form. As performance becomes more expert-like and fluent, so the component skills become automated. Thus, conscious attention is no longer required to monitor the low-level aspects of performance and cognitive resources are available for more strategic levels of processing. Increasingly, mainstream cognitive approaches to learning have emphasised the assumptions of *constructivism* that understanding is gained through an active process of creating hypotheses and building new forms of understanding through intellectual *activity*, rather than by the absorption of information. We should consider concepts as tools, to be understood through use, rather than as self-contained entities to be delivered through instruction. This is the essence of the constructivist approach in which the learners' search for meaning through activity is central.

*The situative perspective* on learning has received a major boost from the reconceptualization of all learning as 'situated' (put into real context). A learner will always be subjected to influences from the social and cultural setting in which the learning occurs, which will also define at least partly the learning outcomes. This view of learning focuses on the way knowledge is distributed socially. When knowledge is seen as situated in the *practices of communities* then the outcomes of learning involve the abilities of individuals to participate in those practices successfully. Hence, there are at least *two 'flavours' to situated learning*.

*One 'flavour' of the situative perspective* emphasises the importance of context-dependent learning in informal settings. This activity-based view of situated learning led to the design of what (Barab & Duffy, 1999) call '*practice fields*'. These represent constructivist tasks in which every effort is made to make the learning activity authentic to the social context in which the skills or knowledge are normally embedded. Examples of approaches to the design of practice fields are *problem-based learning* (Savery & Duffy, 1996) and *anchored instruction* (CTGV, 1993). Here, the main design emphasis is on the relationship between the nature of the learning task in educational or training environments, and its characteristics when situated in real use. (Schone, 2007) and (Quinn, 2005) emphasize the significance of engaging experience of learning for keeping an information-overloaded learner interested and mentally stimulated, even learning through fun, games and entertainment, which leads to development of *serial games, simulations*, and even whole *virtual 3D worlds*. An experience is likely to be engaging for an individual if one or more of the following are true:

1. They face some form of challenge,
2. They have to make decisions,
3. They are allowed to explore,
4. They are allowed to make mistakes without being disciplined,
5. They have fun.

Games-based learning is not about using simplistic ‘Who wants to be a millionaire?’ style as a means to teach people raw facts. Games-based learning can be made to realistically represent a complex environment, system or process that is intrinsically relevant to the learner because it is what they recognize as being relevant to their vocation or career aspirations. That might be achieved by allowing them to explore a virtual oil rig for health & safety training (modeling a physical environment) or allowing them to run a virtual business (modeling a set of interrelated business activities, objectives and processes).

*The second idea from the situative perspective* is that with the concept of a community of practice comes an emphasis on the individual’s relationship with a *group of people* rather than the relationship of an activity itself to the wider practice, even though it is the practice itself that identifies the community. This provides a different perspective on what is ‘situated’. (Lave and Wenger, 1991) characterized learning of practices as processes of participation in which beginners are initially relatively peripheral in the activities of a community and as they learn the practices their participation becomes more central. For an environment of apprenticeship to be a productive environment of learning there need to be opportunities for learners to observe and then practice activities which move them into more ‘legitimate’ participation in the community. Lave and Wenger emphasized how a learner’s identity derives from becoming part of a community of practice. Yet some apprenticeship relationships can be unproductive for learning – the apprentice needs opportunities to participate legitimately, albeit on low risk activities. Therefore, it is not just the meaning to be attached to an activity that is derived from a community of practice: the individual’s identity as a learner is shaped by the relationship to the community itself.

In the last two decades, the activity theory is actualized as *social constructivism*, being an attempt to integrate constructivist and situative community concepts. Activity system is the basic unit for analysis, in which individuals participate as members of communities. A situation when a learner teaches his colleagues from a group and thus improves his own knowledge and profound understanding of the matter is an example of benefits that emerge from group activities.

Inspired by the idea of communities of practise in the ‘digital age’, with distinctive Web 2.0 tools for social networking and bookmarking, active open web content creation, evaluation, categorization, and sharing on various manners (blogs, wikis; comments, linking, tagging etc.), (Siemens, 2004) and (Downes, 2006) promote *connectivist theory*, claiming that knowledge is distributed across a network of connections, from many nodes, sources, and therefore that learning consists of the ability to construct and traverse those networks. Knowledge is, on this theory, *literally* the set of connections formed by actions and experience. ‘*e-learning 2.0*’ is a term coined to express new possibilities if Web 2.0 tools are used in an e-learning environment.

## ***Pedagogic design of e-learning environment***

Although all of those learning theories and perspectives tend to be so exclusive in their claims, for the purpose of pedagogical design of e-learning environment they should be considered as complementary when describing the overall properties of an efficient e-learning environment, analysing learning at different levels of aggregation. A behaviourist analysis analyses the overt activities, and the outcomes of these activities, for individual learners. A cognitive analysis attempts a level of analysis which describes the detailed structures and processes that underlie individual performance. The situative perspective aggregates at the level of groups of learners, describing activity systems in which individuals participate as members of communities. Many theories from different perspectives promote task analysis and making chunks of information, providing an authentic context for e-learning, or accounting for individual differences in learning styles and prior knowledge.

Contributions of theories from each perspectives could confirm those similarities and could be summarize as follows.

### **1. behaviourism and the empiricist perspective promote the following:**

- *task sequencing* in proper order should take the form of simple to complex, known to unknown, and knowledge to application, according to task analysis and measurable learning outcomes;
- learners must be provided with *feedback* so that they can monitor how they are doing and take corrective action if required;
- *learners should be told the explicit outcomes of the learning*, so they can set expectations and judge for themselves whether or not they have achieved the outcome of the online lesson;
- *learners must be tested* to determine whether or not they have achieved the learning outcome;
- *learning paths* - according to previous achievements of an individual learner;

### **2. the cognitive perspective and the constructivist theory suggest as follows:**

- design of teaching and learning *activity systems*, with thoroughly designed interactive activities and tools that promote understanding of concepts and enhance reflection, experimenting and identification of common principles;
- strategies used should allow *learners to perceive and attend to the information so that it can be transferred to working memory*; learners use their sensory systems to register the information in the form of sensations – strategies to facilitate maximum sensation should be used: examples include the proper location of the information on the screen, the attributes of the screen (e.g., colour, graphics, size of text), the pacing of the information, and the mode of delivery (audio, visuals, animations, or video); non-essential sensations should be avoided, to allow learners to attend to the important information;



- learners must construct *a memory link between the new information and some related information already stored in long-term memory*; strategies to facilitate the use of existing schema are the following: *a comparative advance organizer* can be used to help learners recall prior knowledge to help in processing, and *an expository advance organizer* can be used to help incorporate the details of the lesson; *(prerequisite test) questions presented before the lesson* facilitate the recall of existing knowledge, help learners to learn the materials, and motivate them to find additional resources to achieve the lesson outcome; *information should be presented in different modes (textual, verbal, and visual) to facilitate processing* and transferring it to long-term memory, as well as to accommodate for learners' preferences in modes of instruction;
- *information should be chunked* to prevent overload during processing in working memory; to facilitate efficient processing in working memory, online learning materials should present between five and nine items on a screen; if there are many items in a lesson, their organization should be shown in the form of *information maps* – a generalized information map is provided as an overview or the big picture for the online lesson, to help learners to comprehend the details of a lesson, and can be linear, hierarchical, or spider-shaped; as the lesson progresses, each item in the generalized information map is presented and broken down into sub-items; at the end of the lesson, the generalized map is shown again, but with the relationships among the items illustrated; to facilitate deep processing, learners should be asked to generate the information maps by themselves (using map-making software) during the learning process or as a summary activity after the lesson;
- to make the transfer to long-term memory more effective, *other strategies should be used that require learners to apply, analyze, synthesize, and evaluate promote higher-level learning*; *online strategies to allow learners to apply the information in real life should also be included*, because they could assist the learners to develop *personal meaning*, contextualize the information, and to facilitate deep processing; simulation of the real situation, using real-life cases, should be part of the lesson; also, doing and creation of things, practical results, known as *constructionism*, are very important for efficient learning; as part of transfer to real-life situations, learners should be given the opportunity to complete assignments and projects that use real-life applications and information; asking learners to apply the information in a practical situation is an *active process*, and facilitates personal interpretation and relevance;

- *online learning materials should include activities for the different styles*, so that learners can select appropriate activities based on their preferred learning style: *concrete-experience learners* prefer specific examples in which they can be involved, and they relate to peers more than to people in authority, they like group work and peer feedback, and they see the instructor as a coach or helper; these learners prefer support methods that allow them to interact with peers and obtain coaching from the instructor; *reflective-observation learners* like observing carefully before taking any action, they prefer that all the information be available for learning, and see the instructor as the expert; they tend to avoid interaction with others; *abstract-conceptualization learners* like working more with things and symbols and less with people, they like working with theory and conducting systematic analyses; *active-experimentation learners* prefer learning by doing practical projects and participating in group discussions; they prefer active learning methods and interact with peers for feedback and information, they tend to establish their own criteria for evaluating situations; but attention should be made that *learners sometimes need gaining skills and competencies that do not suite to their learning styles, and e-learning environment should supply them with means to achieve those competencies on the most suitable and efficient way*; also, in our opinion, learners should not be automatically guided to prescribed activities for their estimated learning style, but they should have an opportunity to *select* activities that suite them for each lesson, because those learning style estimations are usually not so reliable, commonly having been done according to tests and questionnaires that learners do *before* instruction, usually they are not properly focused on the (too general, psychological) questions they are asked, without an adequate connection to the subject matter;
- *learners should be given the opportunity to reflect on what they are learning*, collaborate with other learners, and check their progress; *self-check questions and exercises* with feedback throughout a lesson are good strategies to allow learners to check how they are doing, so they can use their *metacognitive skills*, i.e. awareness of their progress and principles for effective and efficient use of their own cognitive capabilities and skills, to adjust their learning approach if necessary;
- *learners should construct their own knowledge, rather than accepting that given by the instructor*; in an online environment, students experience the information first-hand, rather than receiving filtered information from an instructor, whose style or background may differ from theirs;

- *collaborative and cooperative learning (team and group work)* should be encouraged to facilitate constructivist learning; working with other learners gives learners real-life experience of working in a group and allows them to use their metacognitive skills; learners will also be able to use the strengths of other learners, and learn from others; when assigning group work, membership should be based on the expertise level and learning style of individual group members, so they can benefit from one another's strengths;
- *learners should be given control of the learning process*; there should be a form of guided discovery where learners are allowed to make decisions about learning goals, with some guidance from the instructor; the more expertise level a learner has, the more control of learning process she would gain from an instructor;
- **the situative perspective in authentic professional context** promotes:
- *an information-overloaded learner should be kept interested and mentally stimulated in an engaging e-learning environment*, even through fun and entertainment; a learner should be challenged to realize a goal, make decisions on the way, and mistakes as well, without being disciplined in the simulated real-world learning environment;
- curricula, as well as learning outcomes should be designed according to expected *experiences* of professional practice for a given occupation, they even should be *scenario-based* (Schank, 2007): 'People learn best when they are pursuing goals that they really care about and when what they learn helps them attain their goals. The best means of learning has always been experience';

### **3. the communities of practice and the connectivist theory promote:**

- because of the information explosion, learners should be allowed to explore and research current information; learners of the future need to be autonomous and independent learners, so that they can acquire current information to build a valid and accurate knowledge base; appropriate use of the Internet is an ideal learning strategy in a networked world;
- social interactions (learn actual, state-of-the-art professional information on blogs, forums, wikis), connections (for example LinkedIn - social networking site for professional purposes) and informal, life-long learning as means for overcoming the impossibility of study programmes to cope with dynamic changes of relevant scientific information;

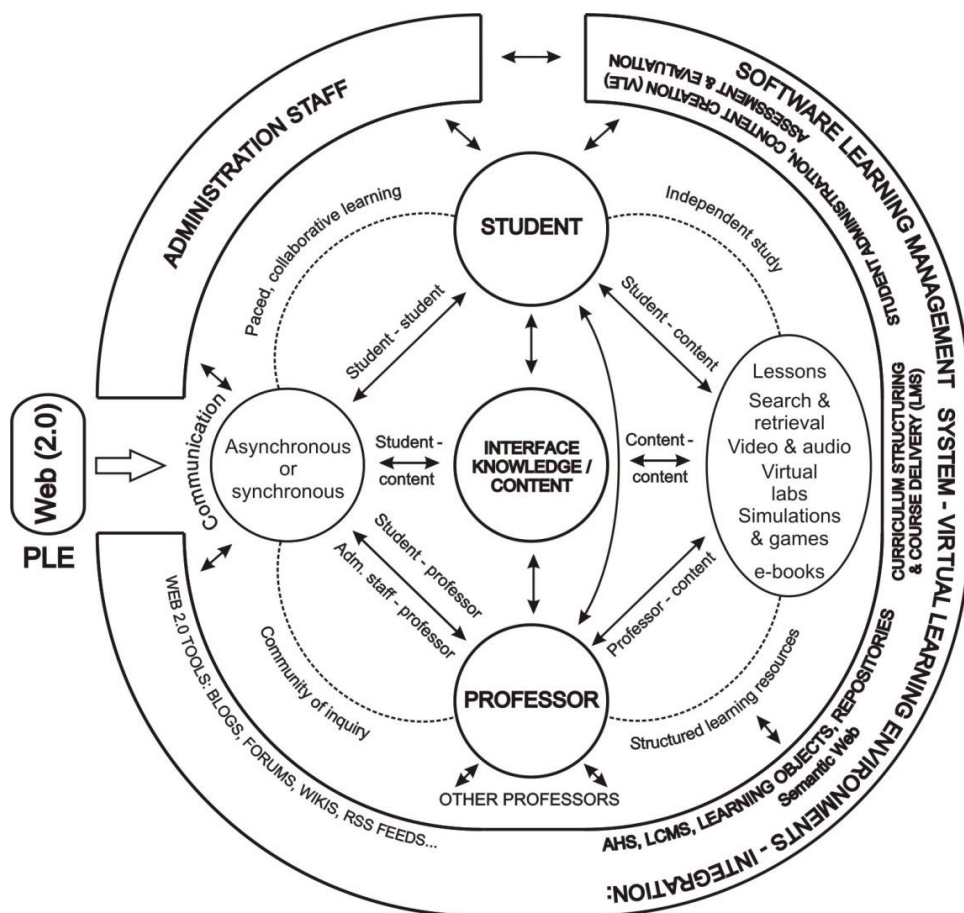
- extraction of categorized and/or tagged links and/or rich site summary (RSS) feeds of relevant (updatable) information for a person, integrated via open web APIs (application programming interfaces) with search and personal assistant utilities, such as e-mail- and calendar/task viewers, classified by fields of interest on separated tabs within personal web page or a business mashup (available at no charge on the iGoogle, NetVibes or PageFlakes sites), is the so-called personal learning environment (PLE), almost a must-have in a networked environment with ever-changing relevant information; a PLE with links and/or RSS feeds to one's own blog could function more like a specific e-portfolio system (e-portfolio 2.0);
- some information and procedures become obsolete because of changes in the field and innovation; learners must therefore be able to unlearn old information and mental models and learn current information and mental models; the information that is valid today may not be valid tomorrow;
- the rapid increase of information available from a variety of sources means that some information is not as important or genuine as other information – as a result, the learner must be able to identify relevant information from irrelevant information;
- learners must have the ability to recognize what knowledge is no longer valid, so they can acquire the new knowledge for a discipline; this requires that learners keep up-to-date in the field and be active participants in the network of learning;
- because of globalization, information is not location-specific, and with the increasing use of telecommunication, technologies experts and learners from around the world can share and review information – the Internet is expanding education into a global classroom, learning and knowledge rests in a diversity of opinions; as a result, learners must be allowed to connect with others around the world to examine others' opinions and to share their thinking with the world; information for learning should not be taken from one source but should be assembled from many sources to reflect the networked world and the diversity of thinking; learning should be delivered in a multi-channel system, where different communication technologies are used to deliver the learning materials to facilitate optimal learning and to acquire new knowledge on an ongoing basis ('on the fly'); mobile (m-) learning promises to help learners function in a networked world where they can learn at any time and from anywhere;
- because of innovation and our increasing use of technology, learning is becoming more multidisciplinary; learners must be exposed to different fields so that they can see the connections between the information in the fields: for example, learning about learning theories requires that learners should be exposed to what the research says in psychology and information technology.

An illustrative graphical model, shown in Fig. 2, comprising all relevant properties of an efficient e-learning environment elaborated above, along with participants and technology involved in the process and some extra features to be discussed in the following sections of the paper, is designed in (Milosavljevic, 2009). All arrows in the model should be understood as carefully designed pedagogical activities rather than a plain communication.

## **THE LEARNING MANAGEMENT SYSTEM - FUNCTIONS, TYPES, AND CHOICES**

The graphical model of e-learning environment in Fig. 2 points out the need for a centralized (web) software system that should integrate business (administrative) and pedagogical functions of an e-learning environment.

*Figure 2: An illustrative model of e-learning environment (Milosavljevic, 2009)*



Administrative (business) functions are necessary segment of an online distance learning environment, since those functions should replace their counterparts traditionally realized at the premises (in educational institution). Existence of those business functions is independent of any pedagogical theories and considerations, and could be summarized as follows:

1. the administration of e-learning model entities – listings, activity logs, reports and classification of business functions (*roles*): learners, faculty members, administration staff, grading scales, courses, topics, and lessons;
2. activity schedule (calendar view) and relevant announcements, commonly including generic communication tools for participants (messages, chat, forums etc.);
3. possibility for a learner to select her own learning path, i.e. set, sequence, and content of instructional activities that will lead her to the goal;
4. evaluation and assessment tools for (self-)testing of learner's (prior) knowledge;
5. providing course availability (exclusively) via Web and / or as a blended learning service.

The first web-based information system that integrated those functions was commonly called the **learning management system (LMS)**. Learning management system (LMS) refers to software that primarily acts as an electronic registrar by electronically performing various enrolment and related tasks. LMSs were originally designed for workplace learning environments, and specifically perform some or all of the following tasks:

1. *registration*;
2. *track participation* (classroom attendance, sign-ons and sign-offs of online courses);
3. *track of completions* (including final scores or grades);
4. *testing*;
5. *follow-up discussions with participants*;
6. *aggregated reports*, such as the number of people registered for particular courses, or learners' success by course units;
7. *transfer of information to other systems*, such as human resource information systems;
8. *process charges for courses*, such as tuition payments and transfer payments among departments;
9. *course catalog*;
10. *skills management*.

LMSs are mainly commercial applications. Some of the most known and used are *Saba* and *SubTotal* systems.

Soon LMS's counterparts in academic environments began to appear, that were called **course management system (CMS)**. Course management systems (CMSs) are online systems that were originally designed to support classroom learning in academic settings, such as universities and high schools. CMSs provide instructors with the ability to perform the following tasks:

1. *place course materials online*. Most CMSs provide pre-programmed buttons for the course syllabus, course schedule, and course materials linked to specific lessons, such as copies of readings and PowerPoint slides from lectures;
2. *track student progress through assessment features*, which enable instructors to give quizzes and tests online, and an *online gradebook*, where instructors can post student grades;
3. *discussion board*, where instructors and students can discuss readings and continue class discussions between formal class sessions;
4. *other communications tools*, which let instructors send announcements to classes and communicate individually with students;
5. *lock box for students*, where students can store class materials in a safe place – either a presentation to give later in class or backing up class assignments in a safe place;
6. *course statistics*, which provide information on the use of the course site, including who used the course site and when.

Examples of CMS include the commercial products *Blackboard* and *WebCT*, and the open source system *Moodle*.

In the beginning of their development, *corporate LMS and academic CMS had a number of differences*, originating from different corporate and academic environments, especially in terms of teaching and training methods and subject matters. Although scenario-based curriculum encourages necessary professional experiences as the basis for creation of a curriculum, academic environments are still tailored to studying broader, more abstract scientific concepts requiring more gradual, detailed and longer cognitive effort, as well as instructional methods, in comparison to more practice-oriented, focused corporate training. Furthermore, academic environment requires more intensive and more sophisticated communication among participants. Demands of training at workplace are *just-in-time*, should be available as soon as it is necessary, ideally during the very job operation, without stopping the work, and with *just-enough* details for an operation to be performed. Corporate courses are shorter, separated units, and not the integral part of a curriculum, so mainly there is no need for a gradebook in a corporate environment. Courses for a corporate environment are designed out of LMSs, in specialized course authoring tools, and *standard ways* (namely the *Sharable Content Object Reference Model – SCORM* standard) are provided for running courses in LMS, as well as for communicating learners' personal data and course results between the course and LMS and vice versa.

Available time, motivation and concentration of learners are also different in those two environments. Since the justification of training in a corporate environment is bound to and measurable according to various market- and competition-oriented indicators and methods, it is no wonder there is also a difference in reports and information system integrations necessary for the two environments.

SCORM learning objects of standard structure and format of LMS-course communication are also reusable, and thus represent the basic units of so-called **Learning Content Management System (LCMS)**. LCMS is a centralized database repository, where course authors can create, store, reuse, structure, and deliver learning contents. In LCMS, there are usually fair search facilities and tools for immediate retrieval of necessary text articles and media units for course authoring. LCMS commonly tends to separate (XML-marked) source content from its presentation, allowing for publishing the same contents in many formats, platforms, and devices, including printed materials (books, brochures, catalogues etc.), web (e-books, tutorials) and mobile devices (smart phones, tablets, palm-tops, PDAs, notebooks). In addition, learning objects are reusable in terms of course structure, i.e. the same learning object could be a reusable unit in many courses. LCMS is a multi-user environment, but originally lacks administrative features for learning, and thus needs integration with some LMS. There is the commercial *DLS (Distance Learning System)* by Serbian *Link Group* as an example of VLE with built-in reusable features of course modular units. Nevertheless, this option is of greater value if there are many modules (course segments) that should be reused in many courses. It is not the case in our Management curriculum. An outstanding example of such a system is *Xyleme*, that could pay for itself only in some extreme use cases, such as (*Xyleme use cases, 2012*):

1. *Technical Skills Publisher* seeking to simultaneously develop multiple learning-delivery formats and expand into personalized-training-on-demand for a new generation of Web-savvy learners (the pilot project imported 700 textbook pages into a central, XML-based, reusable-object database, with content structured as single sharable learning objects, to feed delivery formats including computer-based training (CBT); classroom manuals, just-in-time online performance support modules, paper-based certification and custom on-demand versions of the textbook materials);
2. *Certification Prep and Educational Learning Provider*, seeking to compress its development cycle from 1.5 years to several months, reduce overall costs and make its customized learning applications affordable to colleges, universities, high schools, and small-to-medium sized companies (content from 300 course modules was imported and parsed into reusable content objects enabling customers to design their own courses with specific learning outcomes);
3. *Global Retailer* (seeking to standardize training for 900,000 employees in 30 different languages, and deliver it as personalized training for 30-35 employees at each of 34,000 unique locations; initially, 300 word documents that filled seven large binders have been imported and synchronized into a central, master operating standards library; master files generate customized operation manuals and print-ready point-of-performance job aides).



There were also attempts to design and utilize so-called *adaptive hypermedia systems (AHS)*, that tend to introduce some adaptive features into e-learning environment, but their implementations have not managed to recommend themselves as reliable commercial solutions, but stayed as neglected university pilot projects, probably due to complexity and unreliability of defining automatic response to learning style specifics, and learning style estimations as well. Nevertheless, some adaptive software applications for learning mathematics, relying on the AHS concepts, are still valuable e-learning tools.

At the current stage of its development, LMS and CMS integrated almost all useful options from one another, into a system that is called (in Europe) the **virtual learning environment (VLE)**. However, course authoring tools still have many options to offer that VLE can not. That is why SCORM compatibility is still a very desirable option for the optimal selection of VLE.

### ***Selection of the VLE***

After careful and detailed survey among dozens of commercially and freely available VLEs, **we selected Moodle VLE**, due to its many desirable features (as follows) and possibilities to tune its operation to our organizational and pedagogical concepts.

1. Moodle (an acronym for: Modular Object-Oriented Distance Learning Environment) is the e-learning environment with solid pedagogical background of social-constructivist theory, with instructional activities within a group or a team being the basic element of learners' personal knowledge construction;
2. *Moodle is a free software*, easy available to institutions of higher education without initial costs for a centralized management system software, also *open source software*, built with open source software technologies (PHP, MySQL, Javascript web application), regularly upgraded to newer versions, thus easily adjustable to custom needs, and having widespread and active community, where everyone can find answers regarding installation and optimal usage of Moodle;
3. *Moodle is a modular software* (built-in logic for extensions in its core), above all for *instructional activity code modules*, thus Moodle is extendable to be used for almost every pedagogy (for example already existing third-party modules: workshop, story-telling, role-play, problem-based, cognitive factory, project management, structured forum etc.), and also the following aspects could be extended:
  - *display blocks*, for presenting some useful information on course pages (active and enrolled users, upcoming events, calendar, RSS feed block...);
  - *instructional resource types* (content);

- *quiz question types*,
  - *themes* (visual appearance);
  - *integration modules* (for integration with other web systems, such as virtual classroom systems: free *BigBlueButton*, or *WizIQ* free service; learning objects repositories like *DOOR*, or e-portfolio systems like *Mahara*; authentication systems, like *Shibboleth*, *LDAP*, *Facebook authentication*, *OpenID*);
  - *content filters* (for displaying certain special content, such as molar structure, mathematical and chemical formulae, audio and video content);
  - *language packs* (packages of expressions from user interface, translated into a given language);
  - *course formats* (like built-in week or topic formats, for example *Rustici SCORM Cloud* course format);
4. *Moodle has an intuitive, user-friendly interface*;
  5. Moodle has a very effective and efficient *roles/capabilities and context system*: context hierarchy is as follows: *system - site, course, activity module, or block*; a *role* represents a user status, that has a certain set of associated options (*capabilities*) in a given context; there are built-in roles: *guest, authenticated user, course creator, teacher, non-editing teacher* and *student*, and we created two additional, namely *referent* and *assistant*;
  6. Moodle is SCORM 1.2 compliant, compliance with SCORM 2004 standard can be achieved through free trial integration with *Rustici SCORM Cloud* web service (as the activity module or the course format); this means course authoring tools such as free web SCORM course authoring applications *MyUdutu* or *Xerte*, or free desktop application *CourseLab* could be used for course authoring, course exported in SCORM format and used in the Moodle VLE; if native SCORM 2004 support is a must-have in the LMS, then free LMS called ILIAS could be used;
  7. *Moodle grading system is very flexible and versatile: grading scales are adjustable to almost every grading system* (for grading system imposed by the Accreditation Committee of Serbia letter scale should be set to numbered marks, as well as their respective percentage ranges); Moodle's grading categories can be defined that reflects the accredited grading categories (namely student's engagement in the course, colloquial activities, seminary papers, exam; then each activity is associated to a certain category); Moodle gradebook can be exported in variety of formats, including OpenOffice Calc, Microsoft Office Excel, XML, plain text, and then used in the institution's student information system;
  8. There are built-in Moodle activities that are suitable for performing basic instructional activities imposed by accreditation standards, namely:
    - *the Quiz activity*, that is suitable for performing *self-testing and self-evaluation activities of students* (with unlimited number of attempts and

adaptive feedback on quiz questions), that are used for *evaluation of student engagement in the course*, as well as *colloquial activities* (as single attempt, limited in terms of the period of time to start a quiz, as well as in the duration of attempt);

- *the link and web page resources*, as well as *the lesson activity* for basic *instructional content delivery*;
  - *the Assignment tool - Advanced uploading of files* is suitable for *performing seminary paper assignments, as well as project assignments* that can result in a single file or a group of files, no matter the file type; there is an option of automatic notifications for a teacher that a learner has uploaded a content for assessment, as well as for a learner that a teacher has graded, or at least commented on her work; points given in the activity are automatically shown in the gradebook (that is the common behaviour for every activity) and the information is readily available for the learner; participants may also enter notes describing the submitted files, progress status or any other text information; this type of activity also allows a teacher to upload multiple response files; response files can be also uploaded before submission, which can be used to give each participant a different file to work with;
  - *the Assignment tool - Offline activity* is useful when the assignment is performed outside of Moodle; it could be something elsewhere on the web or face-to-face; students can see a description of the assignment, but can't upload files or anything; grading works normally, and students will get notifications of their grades; *suitable for accounting for points from exams that must be performed face-to-face according to the accreditation standards*;
9. There are activities like *forum, wiki* and their modifications, that encourage active participation of learners in discussions or common project on the strategy for the solution, that could be graded, at least as additional points (can only complement to the maximum number of points for the grading category, that is calculated according to compulsory activities)
  10. There is special support for work in groups for every type of activity (on the core level), with additional support for so-called *groupings*, meaning 'groups of groups', that could have separate set of activities assigned;
  11. Moodle installations could be connected via *Moodle networking* for integrating their users and courses into a single environment;
  12. *There are many Moodle partner companies*, offering services for Moodle hosting, installation and usage, as well as for consulting, customized themes of visual appearance, activity modules, or Moodle software core;

13. Due to its flexibility and modularity, *Moodle is widely accepted even outside the group of its pedagogical followers*; (Siemens, 2004) selects Moodle for formal learning support in his connectivist environment, and Schneider from (C3MS) consider Moodle as ‘the best flexible educational platform, the only one I'd use besides non-educational community portals, wikis and alike’.
14. Many respectable e-learning institutions have performed surveys that promoted Moodle as one of the most effective and efficient VLE; for example, *eLearning Guild* community of professional practice in e-learning performed such a report (Guild - 360 Report, 2009).

### **CONCLUSIVE REMARKS**

This paper is a summary and extraction of our experiences in course preparation and pedagogical design of e-learning environment for study programme *Business & Industrial Management* of specialist professional studies at Higher School of Professional Studies in Business & Industrial Management in Krusevac, Serbia, accredited for distance learning. Authors hope that these practical remarks, along with some organizational tips and tricks presented in (Krstic, Skorup & Milosavljevic, 2012), could be used for improving performance of any distance education study programme.

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# **FORMATION AND USE OF MULTIMEDIA WEB CONTENT IN TEACHING AND LEARNING PROCESS**

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## **Abstract**

*This work aims to present possibilities of the use of techniques for the formation of multimedia educational content in a web environment, by using the principles of cognitive load theory as model of the use of these techniques in educational practice. Rapid technological changes in the information and communication technologies require teachers' creativity, knowledge and skills of teaching by using modern Web multimedia tools. Much like the classic, well-designed multimedia teaching unit is divided into several stages (e.g. introduction, presentation, evaluation).*

*Educational multimedia content should be formed according to certain rules, in accordance with the modern theory of cognitive load. Teachers and others who participate in the development of complex multimedia web content should be familiar with these policies, with the aim of making more efficient and higher-quality multimedia content.*

**Keywords:** *multimedia, information technology, multimedia presentation, Web environment.*

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## ***INTRODUCTION***

A quality process of knowledge transfer is the basis for the efficient functioning of a modern society. The volume of knowledge is constantly increasing, so it is essential that the process of knowledge transfer is constantly improved and innovated in order to achieve efficient, faster and better training of professionals who can meet the future challenges of their profession. Changes were made in the organization of educational contents as well as in the introduction and implementation of new processes, methods, techniques, tools and media. Modern educational technologies have become an integral part of the teaching process, with a tendency not only to improve the learning process, but also to change it basically. Learning is an activity of an individual whose objective is adoption of certain knowledge, skills and habits. Learning outcomes may be related to the development of skills in cognitive, experiential - affective and practical - psychomotor area.

The moment when multimedia systems are included in learning systems has an important place in the development of e-learning. The quality and effect of the use of electronic educational technologies has been increased by including multimedia systems. The most important thing that multimedia has brought is the possibility of achieving real interactivity, which proved to be a key factor in the quality and efficient use of e-content in the educational process.

Multimedia, as a part of information technologies, is often used in teaching, so one can say that it is an important feature of modern teaching. Due to the fact that the shift of the focus of the teaching process has been started, from the teaching content and teachers to students, multimedia undoubtedly have a major contribution to the modernization of traditional teaching, and we should expect that, in the near future, they will represent an everyday event in a classroom. However, we should expect that the use of multimedia will imply certain changes in teaching. Multimedia has always aroused the interest of teachers because of its ability to facilitate and improve communication between students and teaching contents, as well as to provide more effective and efficient learning. The use of multimedia enriches learning process by providing multi-perception.

## ***CONCEPT OF MULTIMEDIA***

Defining the concept of multimedia has drawn the attention of many. Comparing present, numerous, multimedia definitions, we can say that multimedia is a combination of hardware and software that enables the integration of audio, video, animation, graphics, text, all in order to develop effective presentations and present the content - information. While defining the term "multimedia", there are different interpretations, depending on the perspective of observation.



Common view that defines the term "multimedia" is that multimedia is the integration of more than one media / text, audio, video, images, animation, etc. that complement each other and enrich the transfer of information. The essence of multimedia, therefore, is interactivity as the main feature of media. When it is transferred to the field of teaching, then we can say that the use of multimedia in teaching is representation, or display of pedagogical and educational learning content through the interconnected, interactive media, and provides a variety of methods and forms of learning.

If we go back in history, we can say that the beginnings of multimedia expression started early, when the technique of combining written text and pictorial presentations began to be used in books. Multimedia presentation gives a better understanding because contents are shown in many ways, which also provides greater educational value. The ability to express teaching content by multimedia gives greater chances to more efficient and better learning.

During the 80's and 90's of the twentieth century, the concept of multimedia took on a new meaning. New media with great possibilities were created. When combined with advanced hardware and software, those multimedia are capable of providing advanced, rich learning, with the focus on the specific needs of each individual student.

The development of information technology, computers and the Internet, gives new dimensions to the Web learning. In this way, a multimedia teaching material housed at a server can be available anytime and anywhere.

A professor, who uses multimedia in teaching which takes place in a network environment, must have knowledge of how to use the Internet and knowledge of the tools and techniques of designing multimedia teaching.

In the development of quality educational multimedia materials more professionals are involved such as programmers, designers, teachers and others. The goal of formation of each educational multimedia material is that the users can better understand, comprehend and remember a particular teaching content.

Therefore, all parties involved in the development of multimedia educational materials should be familiar with the tools and some basic principles of the design, so that the material, in view of its educational purpose and technological basis, could have best possible quality.

## ***THEORETICAL BASIS FOR MULTIMEDIA USE IN TEACHING***

Theoretical basis for the use of multimedia in teaching is based on the belief of several theories: the theory of information processing, cognitive theory of multimedia learning, cognitive load theory and the integrated model of understanding text and image. The above theories and the model are related to cognitive learning opportunities, the conditions in which students and teachers learn as well as the effect which diverse multi-media have on students during the transfer of information.

Scientifically confirmed theory is that a student with an average ability can store 10% of content he read, 20% of the content he heard, 30% of what he saw, 50% of what he both heard and saw, 70% of what he himself can dramatize and write, and even 90% of what he himself comes up with, says, realizes, does. These results should have an impact on teachers to provide students with such a teaching conception, the best possible learning environment that would occupy all the senses of a student with a participation of his mental-cognitive, psychomotor skills. Without a doubt, this is best achieved by the use of multimedia in teaching.

The need for the use of information and communication technology and the use of multimedia has arisen in teaching content, in order to enable the individual-student to acquire knowledge and education in media enriched environment. The production of professional, scientific information has led to an increasing need for their adoption, use, so in such circumstances, a teacher and a textbook are not the only sources of information.

It should be noted that during the use of multimedia in teaching one should pay attention that the information which these media do not repeat extemporaneously. The advantages of each medium should be used at the most, so that, while presenting teaching content, the media that can fulfill the task assigned best is intensified. Multimedia in teaching should lead to intensification, rationalization and improvement of teaching and learning process.

Teaching supported by multimedia becomes more obvious, more convincing, which is achieved by connection of the written text, images, drawings, sound, animation, while working with the teaching content. Students of the 21st century are different from previous generations in a different way of life and work. Every day they are surrounded by multimedia, information flow is faster than before so the children nowadays are better informed than ever before. Every day they look for information and they use them. Students use computers, cell phones, DVDs and other multimedia skillfully. That is why their needs exceed the level of traditional teaching.

New technologies are an integral part of many human activities so they have use in education, from kindergartens to colleges. Technical and technological progress, after it was successfully implemented in all segments of society, is also reflected in the teaching, and it brings necessary changes. Unfortunately, those changes in education are often late. However, the teaching process is being modernized by the staff training, as well as the use of media and multimedia, where technically more modern teaching aids suppress obsolete ones.

It should be noted that if an educational institution is equipped with the latest multimedia, it still does not guarantee their functional use in the classroom. In order to achieve this, personal and professional competence of teachers are significant, of which it depends whether or not multimedia will be used in the traditional or development sense. The main goal in teaching is to use multimedia and apply them in the direction of emancipated development of a student and focus on the quality of teaching. Therefore, new teaching strategies are formed which are developmentally focused on students.

## ***DEFINING MULTIMEDIA CONTENT***

Educational multimedia content can be very important for the success of students' education. Multimedia content, student learning can be well defined one knows the answer to the following four questions. (6)

- a) Which type of information will student notice first:
  - the sensory / external / - sights, sounds, physical sensations, or
  - the intuitive / internal / - possibilities of insight, premonitions?
- b) Through which sensory channels external information are better perceived:
  - visual - figures, diagrams, charts,
  - experiment - demonstrations, displays, or
  - verbal- word, voices?
- c) Which type of information processing corresponds to the student most:
  - active - through engaging in physical activity and discussion, or
  - reflexive - thinking?
- d) How a student progresses toward understanding a concept:
  - sequentially- in successive steps or
  - globally - in large jumps, stressing unity and interdependence of its parts?

Multimedia content can also be defined on the basis of the answers to four questions:

- a) What kind of information a lecturer highlights:
  - concrete - facts, or
  - abstract - conceptual, theoretical?
- b) Which model of presenting information is emphasized:
  - visual - pictures, diagrams, films, demonstrations, or
  - verbal - lectures, reading, discussions?
- c) Which model of student participation is possible during presentation:
  - active - students talk, move, think, or
  - passive - students watch and listen?
- d) What view of the information is presented:
  - sequential - step by step progression / trees / or
  - global - context and significance / forest /?

## ***STUDENT IN THE CENTER OF THE EDUCATIONAL PROCESS***

Access "Student in the center of the educational process" takes into account the way in which a student receives information. If it is viewed from the perspective of the senses - sensors, multimedia means that a student uses two or more senses - sensory systems. Instead of focusing on the codes that represent knowledge in the system for processing information, attention is directed to sensory modality, or the sense which students use to receive materials, such as eyes or ears.

For example, in an environment based on computer, animation can be received visually, and explanation - speech, auditory. In the traditional form of teaching, the voice of a teacher is processed through the auditory channel, and the projector slides - or drawings on the table, are processed through the visual channel. In a textbook - paper edition, illustrations and printed text is processed visually, at least at the very beginning.

Cognitive theory of multimedia learning assumes that people have two qualitatively different processing channels: one for visual and another one for verbal presentation. The assumption that reinforces this view is that the picturesque and verbal mental views are qualitatively different. By its nature, visual and verbal presentations can be equivalent in terms of information.

This assumption can be expressed by the view that the words and pictures are two qualitatively different systems of knowledge presentation. On the one hand, language is one of the most important cognitive tools that humans invented. By using words we can describe the matter in a way that requires a certain mental effort to be presented in mind. By using images we can shape material in a form that is closer to the experience of our visual receptors. Pictures allow non-linear representation of information.

Although the same material can be introduced through words and drawings, the results of verbal and graphic presentation are not informationally equivalent.

According to the cognitive theory of learning multimedia presentation has the ability to cause deeper learning and memory than presentations made in only one format. The explanation is the following: multimedia presentation leads a student to make a picture, a model of an object, to make a verbal model and to make a mental connection between them. According to the cognitive theory of multimedia learning the act of making connections between verbal and graphic model is an important step in conceptual understanding.

Thus, a student who is exposed to a well structured multimedia content should do those tasks that require the application of gained knowledge better, through which his understanding is measured, than of a student who is exposed to educational content only in the form of words. Explanation of cognitive theory of learning about memory: it is possible that both groups, the one that gets only "words" and the one that gets "words and pictures" have the same result on memory tests. This is because both groups receive the same verbal explanation

which then should be reproduced. On the other hand, by linking words and images, students in a multimedia group are able to create a presentation with multiple meanings, which contains all the necessary steps to explain the causes and consequences. By using this method, teachers develop in their students:

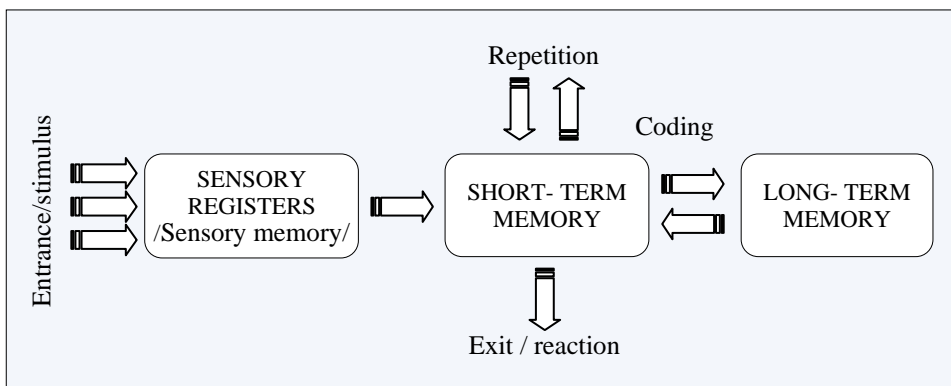
- motivation to actively participate in the teaching process,
- habit of learning during the teaching process,
- critical and independent thinking,
- ability to apply gained knowledge and skills in the profession,
- ability for teamwork,
- ability of problem-solving and decision-making
- ability for argued dialogue

Such presentation will help students in their connecting of each of the important steps in the causal chain, and that is what is measured in a test. Therefore, students who learn using well-structured multimedia teaching contents should be better at doing tasks that require the application of knowledge, and by doing so, it is shown that their understanding is better than of students who learn using only verbal teaching contents.

## ***MODEL OF COGNITIVE THEORY OF MULTIMEDIA LEARNING***

In the design of multimedia, there are two different approaches: one is technological and the other is focused on a student. Technologically oriented approach is focused on the technologically functionality of a successful transfer of a multimedia message. In this approach the main question is how to achieve a successful transfer of multimedia content to students, and, while doing so, to use technology for the design of multimedia content more efficiently (4).

***Figure 1: Atkinson–Shiffrin memory model***



Another approach focuses on a student as a starting point in thinking about designing a multimedia presentation. The goal is to help a student to understand and remember the information better. This approach proceeds from the problem how to design multimedia content, and then how to adapt and use the media technology most appropriately in order to assist human knowledge. The most common current psychological paradigms of learning that are used for this purpose are based on Atkinson and Shiffrin model of cognitive psychology in learning which proceeds from the internal states of thought and personality processes.

Sensory memory is the first stage in the process and has a relatively shortest time of retention of the received information. In the field of visual, information retention is about 0.5 seconds, and in the area of hearing, about 2 seconds. Sensory memory is a kind of excitement retention of a sensory organ, receptors, which allows the identification of shape of objects and phenomena, which means that, in school learning and multimedia learning as well, sensory memory in the area of visual and hearing is of particular importance (5).

Visible sensory memory lasts a very short time after the stimulus ceases to act around 0.5 seconds, which is enough for starting a process of pattern recognition in that short time. Auditory sensory memory enables detection and localizing sounds, and it lasts a little longer, about 1.5 seconds, so that is why the last word is memorized better than when we see it. In the area of short-term memory, the second stage of memory takes place, which occurs on the conscious (controlled) level, which causes certain reactions.

After registering, the information enters the area of short-term memory, where the process of its coding and organization takes place, and, on the basis of that, different decisions are made and reactions are formed. Coding is performed according to the complexity, from the simple perceptual analysis to very complex semantic conceptualization. In this way:

- extraction of the amount of information that needs to be accepted is performed, only on the essential and non-essential which are preferably discarded.
- future information retrieval is alleviated by the appropriate code for permanent storage.

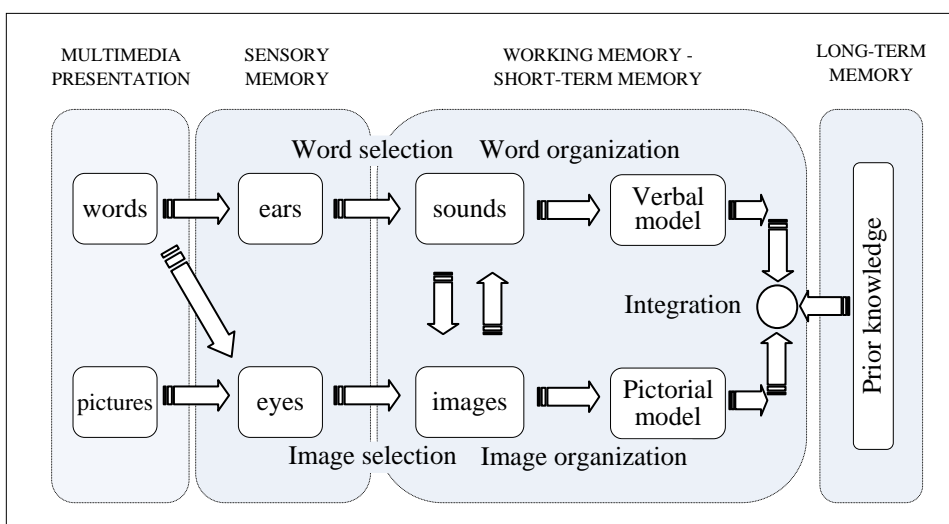
Short-term memory also has a limited capacity whose average is seven elements (2). These elements can be letters, numbers, sentences, images, etc. It is possible to increase capacity of short-term memory by good organization of multimedia content, grouping and appropriate summarizing. Long-term memory is the third component, which represents what we want to accomplish in the end of the process, and that is the memory. In long-term memory, there is everything what makes a lasting base of the student's knowledge and experience.

To make long-term memory available for the search, it should be well organized and meaningful, otherwise the information which is stored in long-term memory may be inaccessible later. Mayer expands Atkinson and Shiffrin model in

cognitive theory of multimedia learning by new knowledge based on the integration of: (6)

- Dual coding theory, which was proposed by Paivio in 1986. According to this theory, humans possess separate channels for processing visual and auditory information.
- Cognitive load theory that was proposed by Sweller & Chandler in 1991, according to which human beings are limited in the amount of information that can be processed simultaneously in each channel
- Model of working memory, proposed by Baddeley in 1986
- Model of active processes (Mayer 1999, Wittrock 1989) (7).

*Figure 2: Mayer's model of multimedia learning*



The following will show the basic principles of the design of multimedia content in a networked environment, which is in accordance with modern theories of cognitive learning and that depends on didactic - methodical stages of presenting a teaching unit.

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## ***PROPOSAL OF TECHNIQUES OF MULTIMEDIA CONTENT DESIGN***

As already mentioned, the basic principle of multimedia, as Mayer says, is that people learn better through a text and picture than just through text. According to this principle, a student achieves better memory and understanding of the material if it is presented with a text and picture than if it is presented just with text. When Mayer says text, he means a spoken and / or written text, while mentioning pictures, he means all forms of static ones- photos, charts, etc., or dynamic pictures - video and animation (7).

Principles of the design of such contents which are proposed as a model, should be the minimum basis for the model of structuring and formation of multimedia teaching units, regardless of whether the lessons should be performed in a web environment or not. Below are suggestions for innovation of visual teaching methods, on the basis of Mayer's principles, with the aim of forming teaching units in a way that they become a model that should be in line with pedagogical practice (8).

If the organization of a multimedia teaching unit is observed temporally and thematically as the smallest encircled totality, similar as a classical teaching unit, then it usually consists of several stages. As the most common stages of the organization of the teaching process in educational practice, are:

- preparation or introducing a student to work,
- presentation of new content,
- practice,
- revision,
- checking and evaluation

### ***Stage of preparation and introducing a student to work***

For this stage it is important that the student is mentally brought into a problem situation and deal with the real problem - the task. According to Mayer people learn better when multimedia learning is established and incorporated into a research and problem solving environment. Problem solving is also the highest form of learning and that is why students should be prepared for this way of learning because it leads to thinking and creativity. (7)

According to Mayer's model of multimedia learning, it is necessary to refresh prior knowledge from the student's permanent memory, which should be linked and be relevant to a given topic, or new content which should be adopted. In the stage of preparation and introduction, preparation of students for the work should



be combined, that is why multimedia content, which is presented at this stage, should be designed to be in function of revision of the previously gained knowledge and experience.

What should be noted is that the refreshment of the prior knowledge has a better effect on students beginners, with little prior knowledge about a new subject, compared to those who know more about the new subject. This fact has been established by the research of multimedia learning where it has been proved that the effect of multimedia is better with beginners, than with people who have more knowledge about the topic, so- called experts.

It can even be a problem for experts, because multimedia content with a lot of basic explanations may seem tedious to them, they are more focused on the content side, or something new they can find out, for which they may need only one picture or a text.

### ***Stage of presentation of new content***

At this stage new content is presented and adopted that gradually expands and deepens until the final rounding in one logical content structure. These logical units that are presented at this stage and present multimedia content to a student should be designed to explain the matter through the relevant practical examples. Researches show that people learn better if material is presented and explained through practical examples. [6]

Mayer and colleagues have performed more researches that contributed to the creation of rules for the design of multimedia content. These principles are very practical and can be applied in a design of any multimedia educational content, regardless of whether that training in a network environment is run synchronously or asynchronously. [7]

Spatial and temporal correlation of content: *Understanding and retention of the material is better if they are spatially closer to one another, and one should display them simultaneously and synchronously.*

Spatial and temporal coherence of content are two related factors of designing educational multimedia content. Spatial correlation emphasizes linking text and corresponding pictures spatially closer, while the rule of temporal coordination emphasizes their time bonding.

The relevant text which explains some parts of an illustration should preferably be placed within or right next to a static image and they never should be separated. If one combines text and moving images - animation, it is better to use moving images simultaneously with speech than with a text. In this way, students are able to simultaneously see and hear the information in accordance with Mayer's multimedia learning model.

*Modality: Better learning is achieved by the graphics and spoken text than graphics and written text.*

Educational content expressed in visual form, especially moving images, is better to be explained through speech but with a lot of written text on the screen, so in that way, according to the Mayer model of multimedia learning, the information enter short-term memory, each through its own channel - there is no "mixing" of images and sound, so that they are better processed in working memory.

*Redundancy: Better multimedia learning is achieved if we do not present the same information in multiple formats.*

This principle suggests that it is unnecessary to express the same information in different ways so that they burden one sensory channel. For example, if a multimedia message is displayed by images and speech, it is not necessary to separately display the same as a written text.

It does not matter whether the same information will be spoken or written; it is important to avoid the simultaneous presentation of written text and its speech, because, according to the theory of dual coding, spoken text which enters through the auditory channel, at the same time enters as the image into the visual channel and thereby unnecessarily burdens it.

*Segmentation: A more complex multimedia content is better learned if it is divided into smaller pieces, than if it is given as a single continuous unit.*

For example, if a complete animated speech without stopping lasts for a longer time (e.g. 120 seconds), then it should logically be divided into segments (e.g. 10, each lasting 12 seconds). Besides, a student should be enabled to self-activate each additional segment (e.g. by a mouse click).

*Coherence: Better learning can be achieved if the additional interesting but irrelevant contents are excluded than when they are included.*

Coherence defines the relationship between more and less relevant contents of multimedia structure. According to this principle, one should avoid inserting interesting multimedia content that are less important or even irrelevant in relation to the basic content, because they disturb the process of constructing knowledge and enhance the emotional impact. That is why this kind of interesting contents is better to be put into the psychological preparation stage and introducing students to the work, because, according to the theory of emotional interest, it raises the initial level of motivation.

*The influence of individual differences: Good multimedia design has a greater effect on students with little prior knowledge as compared to those with more knowledge, and those who have better visual skills than those who are poorer in these abilities.*

If a multimedia message is badly formed, a student with a good prior knowledge will use his prior knowledge to compensate the deficiency, a student with poor prior knowledge will not be able to do it. If a multimedia message is well formed, both of them will understand it.

This means that a student with poor prior knowledge will have a greater benefit from the use of the principle of creating a multimedia message. This means, for example, that for an explanation of an event to students with a lower level of prior knowledge we shall need more pictures (e.g., diagrams) and text (e.g., speech), while a graphical display without a lot of text will be enough for the students with higher levels of prior knowledge.

Also, a student who has better visual abilities will better code and build mental pictorial models and their interaction compared to the one who has difficulties with the construction of such modes. So, when designing multimedia messages, it is important to pay attention to individual differences between message recipients, especially to levels of their prior knowledge related to specific content.

### ***Stage of practice***

At this stage a student independently applies new knowledge or skills for the first time. During practice we expect greater possibility of making mistakes by a student; that is why one should provide some kind of control so that necessary corrections could be made. In this respect, we should build such multimedia content through which a student will pass all the stages, from initial and basic to supplemental and corrective practice.

In the asynchronous network environment when there is no direct contact between a student and a professor, multimedia practice content should be mostly in the form of interactive simulations on real practical examples if possible, with built-in control mechanisms. For example, in an interactive Flash animation, the continuation should not be allowed if an exactly needed procedure is not used, and in the case of badly performed procedures, wizards that focus on the correct solution should be installed.

In synchronous network environment, in which there is an on-line professor-student interaction, there is a possibility of direct monitoring and guidance by a professor or other participants. By a synchronous access - live broadcast, it is possible to directly qualitatively change and adapt the process of practice. For this stage, the use of multimedia learning principle is valid as well as practicing on concrete practical examples.

## ***Stage of revision***

Through this stage, the matter is simply and formally repeated again or the content is briefly repeated with the use of a new intellectual activity, comparisons, analogies, systematization or synthesis or, in the end, problem set in the opening stage is solved. For this stage it is important that the educational content that should be adopted is briefly repeated and continuously presented in the most important details from start to finish.

This stage can be presented synchronously in the same way - live broadcast, or asynchronously - at its own pace. In designing multimedia content for this stage, the use of the principle of segmentation is not required, while other principles are recommended.

## ***Stage of checking and evaluation***

This is the final stage of multimedia learning, which aims to check the levels of the results achieved in student's knowledge, skills and abilities. Today there are a number of tools used for this such as Question Mark, Potatoes, Breeze etc. Using these tools, various types of questions can be modeled, whose templates are built into the tools.

These tools may very well check the ability of student's understanding and remembered amount of gained knowledge. All these tools support multimedia, so one must adhere to the principles of multimedia design when forming the questions with multimedia content.

## ***EFFECTS OF MULTIMEDIA USE ON TEACHING FACTORS***

Teaching factors in didactic interpretations are presented as didactic, teaching triangle: teaching contents, a student, a professor. However, one should think about adding media as the "fourth corner" in determining teaching factors. This opinion stems from a growing need for computerization of teaching process, which is slowly, but surely, establishing in the process of education. It is only the question of time and resources to provide sufficient technical and technological conditions in educational institutions and staff training, which will lead to that.

Also, traditional didactics tends to develop a new scientific discipline "multimedia didactics," whose questions range from the goals and choice of designing teaching contents, to the evaluation, that is, development of learning and teaching strategy in multimedia teaching, didactic and media design. None of the

elements of educational technology is perfect for transmitting every content, for achieving all the goals, for all students, their different abilities as well as learning styles. For each use of educational technologies, it is necessary to determine roles and meanings of certain elements.

Thus, a particularly important issue in the use of multimedia and the Internet for teaching and learning are issues of the criteria for the selection of a didactic model as well as didactic strategies which are build in multimedia. As we have pointed out, the use of multimedia brings certain effects in the teaching triangle.

### ***The influence of multimedia on the teaching contents***

There is no doubt that the range of sources of teaching content is greatly changed in modern teaching. Instead of textbooks and teachers, as the only source of information, through information and communication technologies, information resources are inexhaustible and varied. Multimedia is the common entry of the most. Influence of multimedia on teaching content brings teaching content much closer to a student, so they cease to be something "new, unknown, verbalized, bookish," but initiate student's attention, "invite" a student to investigate, overcome and remember. Multimedia in broadcasting and working with the teaching contents provides a number of possibilities:

- proximity of teaching content is achieved through the obvious presentations, interactive software packages, Internet,
- "smart books" that have integrated multimedia (audio, image, video, realistic display ...)
- learning and working environment for working with the teaching content is enriched, a range of senses are activated in contact with the teaching content,
- teaching contents are enriched, an easy continuous connection and making parallels, correlation of teaching contents from more subjects are possible

### ***The influence of multimedia on a teacher-professor***

A teacher-professor has always been an essential part of the teaching process, as well as in new tendencies of educational, teaching process. He holds teaching situations; he is a creator, a manager of teaching. Prior to the use of multimedia in teaching, he was leading, the only, excluding textbooks, source of information. The position and the role of a teacher succumbed to the changes a lot, under the influence of the use of multimedia in teaching.

However, in order for multimedia to have a positive impact on a professor, the professor has to use them in his work; he must be able to implement them. It takes an organized, thorough preparation, devoid of uncontrolled introduction of multimedia. Modern educational institution requires high pedagogical, technical and technological culture from a professor, who is able to organize, manage and provide teaching communication supported by multimedia, electronic technologies.

### ***The influence of multimedia on a student***

The role of a student in the learning process significantly changes with the use of multimedia. Instead remembering, he, as a teaching factor who learns, must be able to activate, initiate cognitive system and to take the most significant, the best, and the most complete educational contents from the deposited ones. At the level of his potential, abilities (intellectual and physiological), a student has systems of information, facts, concepts of different levels of generality at his disposal, surrounded by teaching situation which is multi - perceptive, and along with all that he has a teacher who leads him in the learning process, guides and supports him.

The results of a Mayer and associates' decade research, about the nature and effects of multimedia on learning, can be applied to students in the learning environment. Multimedia motivates students in learning through different sensory channels and, by the presentation of information through more senses, students get a clearer and more complete information. By multisensory (multi-perspective) teaching, forms of learning, where students independently acquire new knowledge, are being developed. Modern educational technology does not negate the traditional teaching approaches, but it is based on them and expands the number and importance of the didactic elements of teaching by viewing them in new relations (7).

Professors play a leading role in the design of multimedia teaching strategies. They have to provide conditions for the development of students' current and potential abilities, and they should be sensitive to students' needs. Therefore, lifelong training of professors in didactical and methodological and technical and technological fields is necessary: how, when, what and for what purpose to use multimedia.

**Table 1: The effects of the use of multimedia on students**

<u>The empirical results</u>	<u>Practical applications , multimedia</u>
<p><u>Multimedia principle:</u> Students learn better with pictures and words, than only with words.</p>	<p>On-screen animations, presentations, slides and speech should include a written or spoken text and mobile or fixed images. Researches show that there is a smaller effect if the text or speech are not supported by visual elements</p>
<p><u>The principle of spatial constraint:</u> Students learn better when the contents they correspond with (words, pictures) are arranged closely rather than moved apart on the screen.</p>	<p>When displaying a text and images together, the text should be closer to the image, or next to its edge. The most effective is to put the text next to the image.</p>
<p><u>The principle of time constraint:</u> Students learn better when words and pictures are presented simultaneously rather than successively.</p>	<p>When displaying a combination of images and text, they should be simultaneously displayed. When using animation and speech, they should be meaningfully matched.</p>
<p><u>The principle of coherence:</u> Students learn better when the superfluous words and images are excluded, rather than they are present.</p>	<p>Multimedia approaches should be focused on clear, concise presentations of contents. Each insertion of afflictive nonfunctional sounds, external information, reduces learning.</p>
<p><u>The principle of modality:</u> Students learn better from animations and narrations than from animations and on-screen text.</p>	<p>Multimedia presentations that include words and pictures should be designed to use the audio text or speech instead of written text that accompanies the image.</p>
<p><u>The principle of redundancy:</u> Students learn better through a combination of animation and speech, rather than through a combination of animation, speech and text on the screen.</p>	<p>Multimedia approach that contains words and images should display text in a written or in an audio form, but not in both forms because it is blurring the focus and the attention of students. A student becomes overloaded by perceptions.</p>
<p><u>The principle of individual differences:</u> Effects which design of multimedia has on students are greater on students with less knowledge, while the design influences those with greater knowledge less. And it has a greater impact on the students who are visually-spatially oriented.</p>	<p>The above strategies are most effective for beginners, students of the first year, for students with poorer knowledge and skills, for students who have visual memory. Therefore, such multi-media approaches should be created and applied intently.</p>

## ***ADVANTAGES OF THE USE OF MULTIMEDIA IN THE TEACHING PROCESS***

There are numerous advantages of the use of multimedia in teaching:

- *it has a positive impact on educational achievement*, because it enables the use of diverse sources of knowledge, information base;
- *it provides teaching individualization*; students gain knowledge and skills in accordance with their own available needs, capabilities, preferences;
- *86% of European professors say that students are more motivated and attentive*, when using multimedia in the classroom;
- *the use of multimedia has a positive effect* on communication and thinking skills;
- *students take on more responsibility* for their own learning;
- *multimedia provides learning for students* with different learning styles and abilities;
- *multimedia context of teaching engages multi-perception*, which mobilizes more senses;
- *if a multimedia software is used*, contents have been developed by a team of experts, so, in that way, quality is provided;
- *space and time infinity* of gaining knowledge and skills (not just in faculty environment, but also at home, on an excursion, travel ...);
- *multimedia systems allow teachers* to enrich their capabilities of student evaluation, teaching evaluation;
- *the feedback is not late*, as in traditional teaching, but in the multimedia teaching environment, student gets continuous feedback, and if necessary, additional or supplementary information.

Multimedia motivates student while learning through different sensory channels and, by multisensory presentation of information, students get clearer and more complete information. Multisensory (multi- perceptive) teaching develops forms of learning where students independently acquire new knowledge. Modern educational technology does not negate the traditional teaching approaches, but it is based on them and it expands the number and importance of the didactic elements of teaching, viewing them in new relations.

Professors play a leading role in the design of multimedia teaching strategies. They have to provide conditions for the development of students' current and potential abilities and they should be sensitive to students' needs. Therefore, a lifelong training of professors in didactic and methodological and technical and technological fields is necessary: how, when, what and for what purpose to use multimedia.

The results of some research on the social activities of students say that in addition to basic, everyday communication, many students who use social networking also talk about education issues (60%) and that about 50% of them discuss assignments and class activities. This means that students should be provided with an environment that is highly interactive and appealing to them, so they could be more motivated to learn. (8)



## ***CONCLUSION***

Teaching material that is presented to a student by multimedia enables a student to remember more contents during learning. Teaching contents presented in a multimedia network environment have greater opportunities and provide greater chances for more efficient and better learning.

The use of multimedia is an imperative of modern teaching. Effects that multimedia has on the teaching process depend on its use. If they are chosen and implemented in the right way, multimedia has the capacity to enrich and enhance learning, but in a way in which the students will be comfortable. The potential of multimedia in the teaching environment is strong. Still, even the most modern multimedia in teaching can lead to didactic failures. Therefore, it is especially important to properly select, organize and implement multimedia in teaching, according to needs, possibilities, objectives that we have at the specific moment in the learning process.

In this work, through the stages of teaching units according to the principles of pedagogic practice, a proposal of basic principles is given as a model for designing multimedia teaching units which are distributed through the intranet or the Internet. Organization and stages of multimedia teaching units, besides didactically and methodically, would have to be designed according to the principles, so that:

- the multimedia content is spatially and temporally shaped in a way that text and images are spatially placed as close as possible, and that the dynamics of their presentation is temporally coordinated,
- animations are covered by speech rather than by a written text,
- redundant contents are eliminated,
- more complex animations are segmented into smaller parts that can be controlled,
- coherence of multimedia content is achieved,
- individual differences between students beginners and experts are recognized while designing multimedia content.

Presented principles, in accordance with Mayer's principles of multimedia learning, represent general recommendations for designing multimedia content in a networked environment that can be applied as a model while designing multimedia teaching contents in accordance with pedagogical practice.

It is certain that multimedia has significant effects on the teaching process. Still, we should not use it limitlessly. It is best to combine multimedia with other assets, resources, approaches, and a professor should manage, organize, and monitor the effects of teaching and make corrections by a dosage of certain multimedia. Professor must be a good educator, methodologist and an expert on possibilities that multimedia provides, because only such a teacher will create multimedia supported teaching, that will make the most of all the capabilities of selected multimedia, and minimize their weaknesses, and sometimes even surpass them. This will lead to more efficient and effective teaching.

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# **METHODOLOGICAL APPROACH TO ORGANIZATION OF DISTANCE LEARNING STUDIES OF MANAGEMENT**

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## **Abstract:**

*The development of ICT (primarily the Internet) has influenced the development of new distance learning methods, including specialized courseware, which further led to the introduction of radical innovations in education. Therefore, in recent years the traditional methods of education have been replaced by increasingly popular distance learning on different levels and types of education. However, not all areas of education are equally suitable for its application. Criteria for successful implementation of distance learning education are: the field of education is suited to distance learning, available courseware, and the methodological approach to the organization. In this paper, the authors propose a methodological approach to the organization of distance learning studies of management, which is based on Moodle courseware (Modular Object-Oriented Dynamic Learning Environment). The proposed methodological approach includes the following phases of implementation process: education of institution management, preparations for the implementation, courseware installation, instructional content design, training of instructors and teachers, production of instructional materials, preparation of documents for obtaining accreditation, accreditation and licensing process and implementation process. Based on previous experience, authors emphasize a dominant importance of described methodological approach of organization, and also give the guidelines for future distance learning implementations.*

**Key words:** *Higher Education, Management Studies, Methodology, Distance Learning, Moodle*

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## ***INTRODUCTION***

The development of information and communication technologies, especially the Internet, has enriched the concept of distance learning. Distance learning integrates several technologies designed to support the educational process between physically remote participants. The development of ICT (primarily the Internet) has influenced the development of new distance learning methods, including specialized courseware, which further led to the introduction of radical innovations in education.

Therefore, in recent years the traditional methods of education have been replaced by increasingly popular distance learning on different levels and types of education. It is now successfully used in high schools, in higher education, life long learning, corporate education, within specialized courses, etc. Thanks to the comparative advantages over traditional learning, distance learning has become massive and extended the application to a large number of scientific disciplines.

However, not all areas of education are equally suitable for its application. Criteria for successful implementation of distance learning education are: the field of education is suitable to distance learning, available distance learning courseware, as well as the methodological approach to the organization. Management is a discipline that represents an educational area suitable for the application of distance learning. Studying management requires working in discussion groups, writing seminar and project papers in real business conditions, etc., and therefore sets out some specific requirements for the implementation of distance learning.

Based on the experience in organizing specialist professional studies in management at the College for Professional Studies of Business and Industrial Management in Krusevac, the authors of the paper suggest a methodological approach to organization of distance learning management studies, which is based on the software **Moodle (Modular Object-oriented Dynamic Learning Environment)**. This example showed that Moodle offers more than enough features for the chosen field of education. The authors of this paper emphasize a dominant importance of a methodological approach of organization, and also give the guidelines for future distance learning implementations.

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## ***DISTANCE LEARNING***

Distance Learning is defined as the system and a process of connecting students with distributed educational resources. However, the development of technology and its application have added a new dimension to this concept, and distance learning is defined as an integrated combination of technologies designed to support teaching and learning among people who are not physically present in the same location. [8]

The United States Distance Learning Association [9] defines the concept of distance learning as "the achievement of knowledge and skills through delivered information and directions, using different technologies and other forms of distance learning."

### ***History of distance learning***

The origin of distance learning is considered to be the use of the postal system to overcome the distance between recipients and suppliers of educational content (Correspondence Learning). In England in the mid 18th century so called correspondence schools began to work. Students were given assignments and tests to solve, and delivered them back by courier. With the development of radio technology, in 1912 in the United States the rural cooperatives were taking radio courses offered at the University of Iowa. In 1940 television organized educational classes for a wide audience. This suggests that distance learning is not an entirely new phenomenon [5].

Distance learning was institutionalized for the first time in 1859, when the University of London was the first to offer training for distance learning. Another pioneer of this type of education was the University of South Africa, which in 1946 introduced courses for distance learning via the postal system. Open University, University designed exclusively for distance education in the UK, was established in 1969. Similar University, Fern Universitat opened in 1974. in Germany in Hagen. Worldwide, there are more than 90 such institutions, both in English and in other languages [5].

Today, web technology adapts to extend the boundaries of classrooms. Classes are partly or completely taking place in the virtual space, which is largely determined by economic progress. Web technology allows teaching in a wider area, reducing the tuition and improves its efficiency. Distance learning programs can provide an opportunity for older people and further education and update the knowledge.

The development of distance learning has past the following phases [2]:

- The first generation - based on the model of correspondence;
- The second generation – based on a multimedia model that incorporates text, audio, video, computer and interactive video;
- The third generation - based on the telecommunication model, including teleconference, videoconference, audio-graphic communication, TV and radio shows;
- The fourth generation - based on interactive multimedia, Internet-based access to web resources, computer based communication;
- The fifth generation - based on an intelligent learning model, which in addition to the aforementioned elements of the fourth generation, includes access to the university portal with institutional processes and resources.

### ***Basic elements of distance learning process***

Basic elements of distance learning process are:

1. participants (suppliers and recipients of educational content and support staff),
2. educational content (methodologically consistent with the requirements and goals of education and aimed at the target group of students),
3. communication (between participants in the process),
4. technologies (ways of presenting educational content and communication between participants)
5. organization (method and quality of created educational material, the number and capacity of suppliers of educational content), and
6. management (planning, organizing and synchronizing all elements of the process in the institution).

Of particular interest to the organization of distance learning is to review all relevant aspects of the element number 3. communication, as it refracts all the specifics of distance learning in relation to classical (traditional) learning in the classroom (face-to-face) [5]:

1. Actors of the communication process are suppliers and recipients of educational content, as well as support staff.
2. Messages in communication process can be *verbal* or *nonverbal*. Verbal messages are spoken and written words. Nonverbal messages include facial expressions, gestures, posture and movement, behavior, the distance between the actors, clothing, aesthetic characteristics of messages, etc.
3. Depending on the direction, communication can be *one-way* and *two-way*. One-way communication is present when information is transmitted in one

direction, and two-way, where participants mutually exchange information (sending and receiving verbal and nonverbal messages).

4. Depending on the hierarchical relationships among actors, communication can be *authoritarian* and *democratic*. Authoritarian communication involves the use of a superior position of the supplier of educational content in relation to the receiver. The supplier monitors learning process by using tests, and also with the use of rewards and punishments. Democratic communication respects the characteristics, interests and independence of the content recipient. It is also characterised by interaction and adaptation to the needs and wishes of the recipient through an equal relationship, encouraging recipients to express their opinions and make proposals, as well as listening and appreciation of the supplier.
5. Depending on the temporal coordination of activities of the participants in the communication process communication can be performed *synchronously* and *asynchronously*. Synchronous communication is the simultaneous execution and monitoring of teaching, and includes: videoconferencing, electronic conversation (chat), instant messaging, electronic boards (whiteboards) and screen sharing. Asynchronous communication takes place at different times and includes: e-mail, forums, and web documents, as well as quizzes and tests with automated evaluation.

Latest trends in the use of Internet force communication and active participation of all stakeholders in the creation of content through the elements of the "social web" (social web, Web 2.0) [4], which include: social contacts within virtual communities (social networks), working together to create contents pages (wiki), Web logs (blogs), putting their lists of favourite links available to others (social bookmarking) and rapporteurs of the changes that serve to aid in monitoring internet content (RSS - Really Simple Syndication, Rich Site Summary Feeds). These trends impose integration of social web elements into content and learning management system (LCMS - Learning Content Management System), ie. the virtual learning environment (VLE - Virtual Learning Environment), which is synonymous to the distance learning support system (DLS - Distance Learning System), which is prescribed by standards for the accreditation of study programs realized by distance learning.

## ***Concepts of distance learning organization***

The penetration of information and communication technologies in the field of education has intertwined meanings of *distance learning* and *electronic learning (e-learning)*.

Distance learning focuses on the spatial and/or temporal distance of suppliers and recipients of educational content, without specifying the means and technology to establish communication.

E-learning involves the application of any form of electronic and/or digital technologies in learning, for example multimedia presentation on CD-ROM or via the Internet, without determining the existence of communication (interactivity) and possibly connecting remote participants. Due to the exclusive use of Internet technologies in the communication between the participants and in the process of organization of distance learning, as well as to the distribution of e-learning mainly through the Internet, these terms become almost synonymous.

Today different forms of learning and training based on the computer (CBET - *Computer-Based Education and Training*) are developed. They differ in terms of the relevant dimensions of communication, as follows: technology, interactivity and didactics. Depending on these dimensions different forms of CBET are developed, which are presented below.

Teleconferencing (teleconference) is a synchronous two-way electronic communication between two or more players in geographically distant locations, achieved through sound, image, computer and/or telecommunication systems. Kind of applied technology and telecommunications media accurately characterizes some forms, such as audioconference (voice transmission only), video conferencing (video signal transmission) and web-conference (synchronous multimedia communication over the Internet). Teleconferencing forms of e-learning form the experience of distance learning that is most similar to that of classical learning in the classroom, and therefore they are a major tool for the implementation of electronic (virtual) classroom (e-classroom). With this type of working environment the traditional classroom is emulated, where the teacher has control over teaching, i.e. students can "raise hands" when they want something to say.

In addition, electronic board (whiteboard), Internet telephony, two-way live broadcast (webcast) are used and integrated in the implementation of "virtual classroom". There have already been developed web applications that provide the opportunity to integrate these forms. For example WiZiQ [10], a free platform for the organization of seminars and presentations on the Web ("webinars") which has built-in options for scheduling and invitation of participants, setting up files, electronic board and presentations. Other web conference free tool (for up to five users) called Yugma [11] provides the possibility of screen sharing. The aforementioned tools are particularly important because they can be integrated into



Moodle LCMS [12] for scheduling conferences and informing students, which meets the requirement to display web conferences controlled by DLS.

Technological and organizational capabilities, combined with the educational requirements and objectives, determine models of taking distance education in relation to the classical (traditional) classes:

- traditional instruction dominant, only occasionally supplemented by on-line education;
- traditional instruction and online education is carried out in approximately equal extent;
- traditional instruction only occasional and small-scale, on-line education dominant;
- traditional instruction performed through infrequent live meetings, online education conducted almost entirely;
- no traditional education, online education carried out in full.

Teaching models b., c. and d. are often referred to as *combined learning (blended learning)* [2].

## ***Open Source and commercial Learning Management Systems***

A Learning Management System (LMS) is a software application or Web-based technology used to plan, implement, and assess a specific learning process. The exact meaning of LMS is imprecise. Vendors include a wide range of services that differ from one LMS software package to the next. This inexactness is further complicated by variants on the term, such as Learning Content Management System, Course Management System and Content Management System.

In the United States only, the commercial market for Learning Management Systems has well over 100 vendors. Typical among LMS vendors for higher education are Blackboard and WebCT.

There is also a growing market demand for Open Source Learning Management System products. There are currently dozens of OS learning technology products on the market, and the list is growing. A great deal of research and development is focusing on these products. This demand has attracted the attention of many clients, who have begun to ask if Open Source LMSs are now viable alternatives to commercial platforms.

Millions of dollars are being invested in the commercial systems. Yet, commercial vendors do not share their innovations. Indeed, their inventions are what define their competitive value in terms of intellectual property.

The reverse is true in OS LMS research and development. While a great deal less money is being invested into OS LMS development, a vast number of

developers are contributing to the innovation process through diversity of input, recombination of ideas, creativity, and collaboration.

And to conclude, OS LMS products will probably be competitive once they exceed the level of innovation of their commercial counterparts.

## ***About Moodle***

Moodle appears to be one of the dominant Open Source Learning Management System products so far.

As noted before, the acronym Moodle stands for Modular Object-Oriented Dynamic Learning Environment. The design of Moodle is based on socio-constructivist pedagogy. This means its goal is to provide a set of tools that support an inquiry- and discovery-based approach to online learning.

Some of the reasons for using Moodle are:

- it can run on the widest variety of platforms;
- it is easy to install, learn and modify;
- it is easy to upgrade from one version to the next;
- it is modular to allow for growth;
- it can be used in conjunction with other systems (for example WiziQ).

Moodle supports three types of users (user accounts):

- administrator - who is in charge of site-, course- and user-management;
- teacher - who creates and edits courses, communicates with students, moderates discussions and forums, and grades students;
- student - who is a final consumer of distance learning services.

Although Moodle integrates a great majority of tools used in a distance-learning process within so-called activity (programming) modules, there are still possibilities for its improvement by adding new activity modules and blocks (display sections).

There are mainly three options for customizing an application to one's own needs, namely

1. Administration – setting up some control variables for an application, being parameters of built in (programmed already) procedures to perform certain application tasks, through user interface – a common thing for every serious application;
2. Built-in features for developers to add (programme) new objects of particular (previously defined in code) type, based on the well-designed programmatic structure;
3. Direct (programming) code manipulation, the privilege of an open source programmer to directly edit pieces of code according to his own design.

## ***SPECIFICS OF DISTANCE LEARNING STUDIES OF MANAGEMENT***

Since the subject of this paper is methodological approach to organization of distance learning management studies based on Moodle, which is suggested by the authors based of their experience in the organization of specialist professional studies of management at the College of Professional Studies of Business and Industrial Management in Krusevac, in the following text the specifics of distance learning studies of management are given, and later the proposed methodological approach is explained. [14]

The main characteristic of management education at the College of Professional Studies of Business and Industrial Management in Krusevac, on both basic and specialist professional studies, is the continuous intertwining of theoretical and practical training in order to enable students to work successfully in a economy environment. Basic professional studies are implemented in traditional way, while the specialist studies are carried out by an accredited distance learning program. In the following text specifics of distance learning management education at specialist professional studies at an accredited study program Business and Industrial Management will be specifically discussed.

The purpose of the study program of specialist professional studies Business and Industrial Management is training of managers of operational and tactical levels of management hierarchy, in terms of deepening the already acquired knowledge and skills from basic studies, in order to be able to:

1. optimally apply managerial functions and elements of subjective support for an adequate response to requirements and needs to solve complex tasks of operational and tactical management level;
2. be employed in positions of operational and tactical management level in business systems, institutions, and small and medium enterprises.

Projected contents of the study program directly contribute to the achievement of the mission and goals of the school, by focusing on key elements of the management approach with IT support in achieving managerial and business functions in a quality evolution of business and industrial system.

The realization of the study program enables to acquire the necessary knowledge, with the emphasis on their use by both students and active managers in continuing education.

The objectives of the study program Business and Industrial Management include:

- achieving enhanced competencies, professional skills, mastery of appropriate methods for their acquisition in relevant areas of business and industrial management;
- development of diagnostic skills for management problems and projection of solutions to overcome the problems, with the reliance on information support (management information systems and databases in management).

By mastering the study program of specialist professional studies Business and Industrial Management, students acquire general and specific skills and capabilities that contribute to the efficient performance of professional and scientific activity.

By mastering the study program Business and Industrial Management student obtains the following general capabilities:

- Ability to analyze, synthesize and forecast solutions and possible consequences of management actions at the operational tactical level;
- Mastering the methods, procedures and processes of studying of operational/tactical problems;
- Ability to design methods and develop of critical and self-critical thinking and approach to solving operational problems through the use of certain methods of design;
- Ability to apply knowledge in managerial practice;
- The development of communication skills in cooperative relations with the narrower and wider social environment;
- Improving professional ethics skills in making operational/tactical decisions.

By mastering the study program Business and Industrial Management student acquires the following specific skills:

- A thorough knowledge and understanding of the business and industrial management as a profession;
- Ability to solve operational problems using mathematical methods;
- Linking knowledge in business and industrial management with their application in the broader context of the business operations;
- Ability to track and use innovations in management;
- Development of skills and abilities in the use of knowledge in the field of management;
- Mastering the use of available information and communication technologies in the acquisition of knowledge in the field of management.

To successfully manage manufacturing processes, the manager has to master certain competencies during studies. They consist of a multidisciplinary general education theoretical knowledge, as well as mastering a series of practical skills related to the practical management of the production process. This requires that students master the skills of human resources management, and also teamwork.

Competencies concerning the general theoretical education can be reached through the realization of subject matter in core, supplemental and beyond the recommended literature, which can be realized through virtual distance learning classes, and the use of a Learning Management System - LMS. A prerequisite for the use of LMS by students is the knowledge of basic computer skills, as well as the use of the selected platforms for distance learning.

Competencies concerning practical management skills can not be reached in a virtual way or by simulation, since they require a real production environment, which in this case is called *Pilot plant*.

Pilot-plant is a concrete company that, in a selected part of its operations, serves as a practical training ground for students to: acquaint with the work process, survey the condition of work processes, design solutions, implement solutions, include in the ongoing operation of the company. Education should enable students to meet the real business environment through exercises and practical work and instead of solving the so-called school problems, use their knowledge and creativity to solve real, everyday problems in existing businesses. The concept of study program provides that the implementation of this practical work is done in teams, allowing students to master teamwork as well. [8]

The importance of the practical aspects of the study program lies in the fact that subjects (courses) that require practical implementation of term papers and project work as well are prevalent in the structure of the curriculum.

From the foregoing it can be concluded that management is a scientific discipline whose studying raises certain specific requirements for the implementation of distance learning. Author's experience in the organization and implementation of distance learning in management shows that most of these demands can be met if the process of management education includes the appropriate learning management system (Moodle in this case), which provides a range of suitable tools for communication and teamwork and exchange of multimedia content.

## ***DESCRIPTION OF THE METHODOLOGICAL APPROACH TO ORGANIZATION OF DISTANCE LEARNING STUDIES OF MANAGEMENT***

As stated in the introduction of this paper, criteria for the successful implementation of distance learning education are following: the field of education suitable for distance learning, available distance learning courseware, as well as the methodological approach to organization. The authors in this work, of all the criteria above mentioned, give special importance to **the methodological approach to organization**, which will be further explained below.

The proposed methodological approach to implementation of accreditation process, licensing and introduction of distance learning study programs at higher education institutions (hereafter: HEI) is based on the experience gained by the accreditation, obtaining licenses, the introduction and implementation of the distance learning study program of specialist professional studies, implemented at the College of Professional Studies of Business and Industrial Management in Krusevac.

The methodological approach to the organization and implementation consists of number of phases that are logically and chronologically built upon each other, which can be individually extracted depending on the HEI management decision, as follows:

- 1st Phase: Education for HEI Management on the introduction of distance learning,
- 2nd Phase: Preparation for the program realization,
- 3rd Phase: Installing the learning management system,
- 4th Phase: Training of teachers and realization of teaching content,
- 5th Phase: Preparation of documentation for accreditation and licensing process,
- 6th Phase: Accreditation and licensing, and
- 7th Phase: Preparation for implementation.

The role, importance and the implementation of each of these phases will be explained in more detail below.

### **1st Phase: Education for HEI Management on the introduction of distance learning**

This phase of the program aims to inform HEI management on details as follows:

- Standards for accreditation of distance learning academic programs, as well as the advantages and limitations that result from them;
- Distance learning models available today (synchronous, asynchronous, blended learning, etc.).
- Distance learning management system proposed for use in HEI (in this case Moodle), its possibilities, advantages and limitations.

This phase of the program is necessary so that HEI management can be informed in detail on this subject, in order to be able to take the necessary decisions related to distance learning, and to be able to actively participate in all the phases of its implementation.

### **2nd Phase: Preparation for the program realization**

In this phase of the program HEI management will have to make the following necessary decisions regarding distance learning:

- The decision on the acceptance of offered method of learning,
- The decision on which study programs (first or second level of study) will be implemented by distance learning,
- The decision on the number of students for every distance learning study program.
- The decision to grant the necessary budget for the program.
- The decision on the acceptance of the team for the implementation of the program implementation.
- The decision on appointing the implementers of activities in HEI:
  - heads of distance learning study programs,
  - system administrators,
  - assistants for student affairs,
  - teachers responsible for preparing educational content for each subject (course),
  - associates for all study subjects, who must operationalize materials prepared by the teachers.

### **3rd Phase: Installing the learning management system**

At this phase, selected LMS system is installed on the Web, set and adjusted by a Moodle expert, in accordance with the requirements of HEI management.

Firstly, the structure of study programs is defined on the distance learning platform, and all courses are placed, in accordance with the curricula of study programs.

After that the user accounts are defined – including access parameters for all users (administrator, secretary, responsible teachers and staff), which enables stakeholders active access to the platform and relevant study programs.

### **4th Phase: Training of teachers and realization of teaching content**

This phase is planned to train all appointed carriers of implementation activities.

Training is provided for the following stakeholders of the implementation of distance learning, including:

- Training for Moodle system administrator, who should gradually take over the administration of the platform,
- Training for officers to deal with student issues (Secretary),
- Training for teachers responsible for the associated courses related to:
  - designing the curriculum content, and also quizzes for self-evaluation and reviewing progress of students in the learning process;
  - preparation of colloquial tests;
  - preparation and issue guidelines for the implementation of term papers;
  - exam test preparation;
  - checking the validity of all kinds of tests;
  - defining ways of communication with students;
  - assessment of students;
  - controlling the working schedule (setting the terms for the implementation of students' tasks), etc.
- Training for assistants in charge of:
  - setting up educational content on the platform (uploading);
  - setting up tests and term papers to the platform;
  - communication, consultation and service of students;
  - assessment of students;
  - controlling the working schedule (setting the terms for the implementation of the student's tasks);
  - data backup, etc.

Along with the implementation of the training of teachers and teaching associates, begins practical realization of teaching content, their design and preparation by teachers, as well as their placement on the platform by the associates. The content must be tested from the student's point of view.

### **5th Phase: Preparation of documentation for accreditation and licensing process**

The accreditation of the study program involves submission of accreditation request for distance learning academic programs and also supporting documentation. It should be noted that the requirement for the submission of documents for the accreditation of study programs is that all courses are created and uploaded on the platform.

Preparation of accreditation documentation is carried out in accordance with Standards for accreditation of study programs (Standard 12. Distance Learning) and Guidelines for the preparation of materials for accreditation of a distance learning study program. Accreditation documentation includes filled out forms for the accreditation of study programs, and supporting documents such as study programs, course books, books of teachers and electronic forms for study programs and institutions, and other supporting documents and spreadsheets, according to the standards. [13]

Preparation of accreditation documentation involves harmonization of HEI normative acts (the Statute, the Rule book on student enrolment, the Rule book of the studies, the Rule book on standards for evaluation and quality assurance, HEI site, et al.).

These documents must be approved by the competent HEI authorities.

### **6th Stage: Accreditation and licensing**

The duration of this phase depends on the efficiency of the Commission for Accreditation and Quality Assurance of the Republic of Serbia (CAQA), in the case of accreditation, and the Ministry of Education, Science and Technological Development of Republic of Serbia, when it comes to issuing licenses to HEI.

### **7th Phase I: Preparation for Implementation**

This phase is conducted only after obtaining accreditation (license) and includes preparatory work related to the following activities, namely:

- Harmonization of existing normative acts at HEI with the way of realization of the distance learning study program,
- Marketing activities of the new modes of study, which differs from the classical;
- Development of procedures for the final paper, etc.,
- Transferring data on students success from Moodle LMS to special HEI students database,
- Creation of Web questionnaires in accordance with the Regulations on self-evaluation and quality assessment of study programs.



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## ***CONCLUSION***

The current paradigm in the development of human society is information society (digital society), which is based on the use of computers in almost all areas of human activity, education, creativity, information, entertainment, ...

When it comes to distance learning, it can be concluded that the process of distance learning in its evolutionary development has taken completely new shapes and forms in the information society, which allowed its use in various fields, including management.

This paper presents a methodological approach for effective and efficient management education by distance learning, which is based on a Moodle (Modular Object-Oriented Dynamic Learning Environment).

Proposed methodological approach of distance learning management studies is the result of the practical realization of a study program of specialist professional studies which has been successfully implemented and tested during last three years.

In the fourth chapter of this paper Description of the methodological approach to the organization of distance learning management education, the most important phases of the implementation of the distance learning study program are presented (Education for HEI Management on the introduction of distance learning, Preparation for the program realization, Installing the learning management system, Training of teachers and realization of teaching content, Preparation of documentation for accreditation and licensing process, Accreditation and licensing, and Preparation for implementation.), and clarified in details.

The presented description of the methodological approach to the organization of distance learning management education can serve as a useful tool - a sort of a guide for the methodology of implementation of other distance learning study programs or how to define an effective and efficient way to introduce a distance learning degree program and bypass all the meanderings that undoubtedly await those who intend to follow the same path.

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## ***E-LEARNING AS A STRATEGY OF REDUCING EXPENSES AND SUSTAINABLE EDUCATION***

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### ***Abstract***

*In today's modern business, for managers it is necessary to ensure the resources needed to accomplish business ventures and an array of challenges in solving various tasks. There will be no reproduction process nor will the company achieve the desired results, if the required components are not ensured and invested. In the process of company's business an expense is one form of investing material and human components. The main business components – means of labour, objects of labour and workforce – are introduced into the organisation and the organisation's technological process as appropriate use values. Precondition for creating new products and services is spending these components, but in the sustainable way. Because of these reasons, modern education introduced the concept of sustainability. To offer its services to the consumers, the students have to be provided with definite means of work and qualified staff. However, the business operations involve some expenses which each institution intends to reduce to its minimum. The paper shows that the expenses in such institutions are possible to reduce by introducing the platform of e-learning and in that way to contribute sustainable education.*

***Key words:*** *resources, costs, project, e-learning, sustainable education.*

## ***INTRODUCTION***

A project is a special venture that cannot be repeated and has a fixed beginning and ending. The general approach when considering the term 'project' is found in the following definition: „A project is a complex, unique business venture that is to be undertaken in the future with the aim of accomplishing the goal within the predicted period of time and with anticipated expenses.“ (Jovanovic, 2004). In recent years, the topic of distance learning with an emphasis on the possibility that students can learn better with less effort has become increasingly popular. This is also related to the issue of reducing the costs of studying. The platform which makes possible this kind of studies presupposes that students would not have to come to the classes often, which would reduce transportation costs, which would eventually reduce the total costs of education. This would open a possibility for those living far away from college to start studying and attend school with less effort. Besides the mentioned cost reduction and better services the education system would provide, the innovated way of education would also increase business profit. Along with technological developments, distance learning has developed with regard to the use of educational material. At first, printed material was used; later, technological achievements have allowed the introduction of the new 'instructional' media such as pictures, slides, films. Electronic media have played an essential role here – the radio, television, and later interactive computer technologies and dynamic Web sites. The paper describes one of the possibilities investing in e-learning offers, how much certain resources can be saved thanks to this process as well as the return on investment calculation.

### ***E-LEARNING - THE MAIN CHARACTERISTICS***

The key element of successful distance learning is the communication between teachers and students. (Dimitrijevic, 2009) The essential role if this teacher-student relation is to be successful belongs to the medium. If the minimum communication is to be accomplished, the relation between the three elements - sender, recipient and message – has to function properly.

If the message stands for a kind of instruction, then apart from the student, teacher and contents, what also has to be taken into account is the environment in which this process is taking place. The whole system of this new form of education has its historical development which started in the first half of the 19<sup>th</sup> century and is characteristic of a very complex nature up to the present day. It was put in motion by an Englishman called Isaac Pitman in 1840. Since then, these new forms of communication have constantly been developing as numerous examples prove: Anna Picknor and education of women at home, colleges in New York and the Pennsylvania State University, BBC, the NET, cable TV and finally Flying

Classrooms and the development of the LMS (Learning Management System). (<http://www.pil-vb.net/>) Modern technology has allowed teaching material to be read directly from the server of the educational institution (figure 2). The contents of the material are displayed at the user's computer for which purpose one of the search engines is used (Explorer, Netscape, Firefox, etc). The educational institution has to have the Internet connection (be online) so that its Websites can be accessed. Tests are done in the same way. What is used is the interactive approach, i.e., dynamic sites, whereby the user gets one question at a time which he or she has to answer within a fixed period of time.

The e-learning system integrates multimedia lectures and interactive drill sessions, which makes the communication with professors, assistants and colleagues easier as they all use e-mail, forums or messengers. The development of technology leads to the development of the LMS (Learning Management System), the system which, as its name suggests, manages the process of learning. These systems make it possible for the teacher to monitor how each student develops and progresses and these observations are then entered into databases. However, time had shown that the LMS had to be upgraded, which was done thanks to the achievements made in Information Technologies. Students who study 'from home' have the same rights and duties as those who physically attend the classes; the only difference is that they do not have to attend the classes in the regular way and take pre-exam tests (seminars or colloquiums) before taking an exam. They only have to take their exams at the university headquarters building. Electronic learning would be an attractive form of education for all those who are interested in studying but who cannot come to school physically for various reasons.

For the new generations of children, pupils and students now entering primary and secondary schools or universities, computers are an everyday thing; therefore, it is quite natural to expect that the present form of education is bound to change in the future. This would largely improve the services provided by the educational institutions and lower the costs these institutions currently have.

## ***ELECTRONIC LEARNING AS IMPORTANT PART OF MODERN SOCIETY***

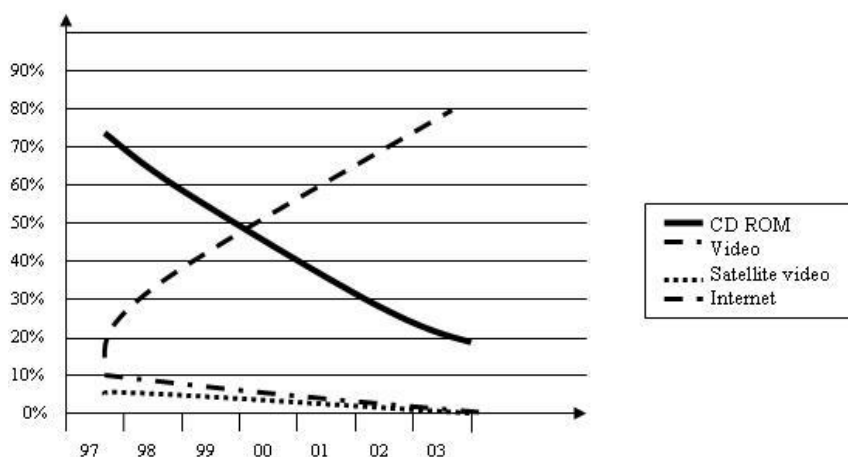
The economy of transition countries very often undergoes deep-rooted changes. The transformation of ownership structure, the influx of foreign capital, bank transformation, new production programs, the application of new technologies, the introduction of quality systems – these are just a few of the measures that have to be conducted. It frequently happens that these measures fail to be carried out as there is no high quality staff to do so. Many companies would find their interest in electronic learning as their employees could undergo retraining or special courses organised by higher education institutions. The accepted

concepts of adult education and lifelong learning are yet another elements that support the need for introducing some form of modern learning. The staff at higher education institutions need a MSc degree to be qualified for this form of teaching. Hiring a lecturer with a PhD degree or any other high quality lecturer, even from abroad, is just one of the possibilities electronic learning can offer ([www.scribd.com/](http://www.scribd.com/)). All the above mentioned things may lead to the conclusion that there are many reasons for justifying the introduction of modern ways of learning into higher education institutions. Since this guideline has a strategic character, it is necessary to research all the relevant indicators in higher education institutions if distance learning is going to be introduced into these institutions in practice. The results which would be the outcome of such research could be used to create an adequate distance learning model. The sole reason for the application of the new education method should primarily come as the result of the need to improve the quality of classes and the quality of knowledge students acquire. Of course, another goal is to equip graduate students as best as possible for their entry into the job market. Electronic learning is not just important for students; many things speak in favour of its importance for the education of the already employed people. Today's managers find themselves stretched between two divergent forces: on one hand, there are constant requests for education, and on the other, the employees are absent from workplace due to the training courses they attend. The additional costs made because of the employees' absence from work are very often so high that managers avoid sending their subordinates to these courses. This is how great potentials get lost as companies do not have high quality workforce ready and willing to take part in the competitive battle.

The same goes for the education of future teachers and other staff employed in education especially when it comes to the use of modern teaching techniques whose aim is knowledge transfer to pupils and students. Young people who have completed their secondary education, workers and other interested parties find themselves in a similar position. Faced with merciless competitive struggle in the job market this social categories are forced to continue learning and undergo retraining. Therefore, they are willing to invest in new knowledge. This new knowledge always pays off at the end in many ways, and e-learning is primarily that kind of knowledge. There are many reasons why electronic learning should be introduced into educational institutions, and all of them could be categorized as follows:

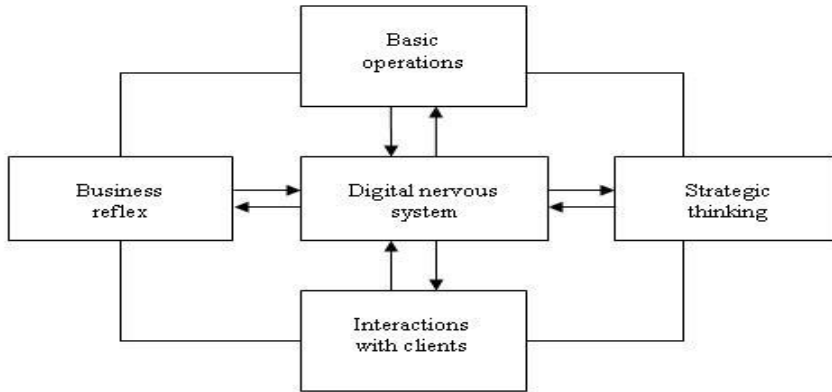
1. E-learning allows students to choose the place, the time and the duration of learning sessions, 24 hours a day.
2. E-learning allows access to distance users.
3. E-learning makes the retraining of the employees easier as it provides a favourable time and price framework.

In a relatively short period of time, information technology has changed the way of both learning and teaching. Computers and software are rapidly developing and the price of Internet services is decreasing.

**Figure 3 - Internet dominance in technologically based education**

Source:([www.scribd.com/](http://www.scribd.com/))

Electronic learning saves time and money and offers a possibility of the dispersion of knowledge within seconds in what is practically unlimited space (distant places, other countries, other continents). Figure 3 shows the Internet dominance in technologically based education in the period from 1997-2003.([www.scribd.com/](http://www.scribd.com/)) The use of *intellectual capital* indicators for *external reporting* purposes is also based on the principles of information technology. External reporting gives organizations a more detailed insight into the efforts which should lead to a long-term and successful business and coordination among the employees. Therefore, it could be concluded that the knowledge sharing approach should be embedded into everyday work processes by help of IT (Figure 4 – Digital Nervous System) which would change both the culture and the style of the organization. (Gejts, 2001)

**Figure 4 – Digital Nervous System**

Source:(Gejts,2001)

## ***POSSIBILITIES FOR REDUCTION BUSINESS EXPENSES OF A HIGHER EDUCATION INSTITUTION***

An expense is one form of investing material and human components in the process of work and company's business. If the required components are not ensured and invested, there will be no reproduction process nor will the company achieve its results. The main business components – means of labour, objects of labour and workforce – are introduced into the organisation and the organisation's technological process as appropriate use values. Spending these components is a precondition for creating new products and services.(Perovic, Ilic, 2010) Expenses represent the value of spent production elements in the reproduction process, but in a *sustainable way*. Since the price reflects the value, we can say that expenses, which are reflected in the money spent, represent the quantity of the workforce, objects of labour and means of labour spent in the process. Monitoring the expenses is an important element of the whole process of the project realization, and it is also necessary in terms of a rational and sustainable spending components. Its main goal is to ensure that whatever is spent follows the dynamics and amounts according to the pre-established and sustainable plan. Within one organizational structure, the process of cost monitoring and control should be organized as a separate system with the main task of supervising and gathering the data referring to the resources really spent and those planned to be spent. (Jovanovic, Jovanovic, 2010) Planning saves time and makes it possible for various company's resources to be used in the best possible way, in other words in the way of sustainable development. (Jovanovic, 2005)



Therefore, costs encompass the following:

1. Workforce costs
2. Costs of objects of labour
3. Costs of means of labour

All the costs could be broken into different categories depending on the criteria used but the most common ones are the following:

- Considering how costs are distributed and who has to pay for them, there are:
  1. direct, and
  2. indirect costs
- Considering the relation between the costs and the degree of capacity use, there are:
  1. fixed and
  2. variable costs.

Table 1 shows some of the expenses a higher education institution can have (this is an assumption). The paper then deals with the calculations regarding resource saving, costs of introducing the electronic platform and e-learning as well as return on investment and profit increase.

**Table 1 - Overview of some expenses of higher education institutions (€)**

Offices materials costs	20000
Production services	60000
Costs of capital maintenance	40000
Costs of postal services	5000
Costs of newspaper ads	3000
Costs of ads on the radio	9000
Costs of brochures and posters	10000
Costs of production services	4000
Costs of utilities	2000
Seminars and symposia	9000
Cleaning and maintenance	3000
Gross costs of fees	50000
Accrued expenses of travel accounts	60000

The principle of accomplishing maximum results at minimum costs is embedded in every economic entity, including companies. (Jovanovic, 2005) That is why it can be said that it is also the principle of *sustainability*. If the e-learning platform together with all the required equipment could be installed and this process put in motion, it would be possible to calculate how certain business costs

of higher education institutions could be reduced, as well as return on certain funds and the amount of money left for salaries after the investment payoff.

E-learning would lower costs of transportation of professors, which would automatically reduce the costs of travel accounts. It can be said that this is fuel savings in one way. However, this would not be the only saving. We should not forget that every higher education institution has to offer its students textbooks and other learning material; this is yet another expense and it is paid for publishing activities.

The publishing expense can be calculated by using the following equation (1):

$$T_p = T_k \cdot n \quad (1)$$

where:

$T_p$  – publishing expense,

$T_k$  – publishing expense for one textbook (for one subject) and

$n$  – number of subject per year

If we assume that publishing one textbook ( $T_k$ ) costs approximately 400 €, and if this number is multiplied by, let's say 7, which is the number of subjects per schoolyear, we will get 2800 € – this is the amount paid for publishing costs -  $T_p$ . Based on the equation (1), the following  $V$  is obtained:

$$T_p = T_k \cdot 7 \quad T_p = 400 \cdot 7 \quad T_p = 2800 \text{ €}$$

The publishing expenses for four years amount as follows:

$$T_p = 4 \cdot 2800 \quad T_p = 11\,200 \text{ €}$$

Besides the schedule of classes, the e-learning platform would enable students to use textbooks in the electronic form. This would increase the efficiency of services provided by the institution, or in other words, education as a whole would be more efficient. And finally, since the textbooks would be practically free, the tuition could be raised. But this is not only saving. We can say that it is also saving printing paper in a *sustainable way*.

As far as textbooks are in question, the fact is that students tend to buy less, or do not buy textbooks at all as their copies cost much less. The profit gained from the raised tuition could be used to stimulate professors, for example, they could be paid additionally for making electronic copies of their textbooks and putting them on the platform.

## ***COSTS OF THE INTRODUCING OF ELECTRONIC LEARNING***

If we take for example, that the higher education institution already has some software (assuming that it is purchased much earlier, and that is not included in the calculation of the cost of this Paper) further calculation is based on the saving from the platform with the required minimum investment. Table 1 shows that costs of postal services are 5000 €. This amount includes the price of the Internet connection. The electronic platform uses a Web server, and if a web hosting service is to be used, the costs of leasing would be 200 € per month. This sum of money includes the price of putting the website on the Internet, which is 120 €, and the price of leasing (hosting) the site which is the remaining 80 €. So, the costs per year would be the following:

$$T_w = 12 \bullet 200 \text{ €} \quad T_w = 2.400 \text{ €}$$

Besides the above mentioned costs, there is yet another category of costs and this one regards teachers as putting multimedia contents on the platform requires extra time spent by every teacher, that is, an extra payment for them. Those expenses can be calculated on the basis of the equation (2):

$$T_{pr} = c \bullet n_c \quad (2)$$

where:

$T_{pr}$  – total expenses of placing multimedia contents on the platform,

$c$  – expenses of placing multimedia platform contents per teaching hour, and

$n_c$  – number of teaching hours per year

If we take that the amount of 10 € is to be paid for every class (this sum is doubled in comparison to 5 € which is paid for regular classes), then the amount of money for one subject (it is necessary to have, let's say, 30 classes per term, that is, 60 per year). Based on the equation (2), it is obtained as follows:

$$T_{pr} = 10 \bullet 60 \quad T_{pr}/\text{year} = 600 \text{ €}$$

The total costs of teachers' salaries ( $T_z$ ) for seven subjects per year would be the following:

$$T_z/\text{year} = 7 \bullet 600 \text{ €} \quad T_z/\text{year} = 4200 \text{ €}$$

The costs of salaries per subject for four school years ( $T_{sz}$ ) would be the following:

$$T_{sz} = 4200 \bullet 4 \quad T_{sz} = 16800 \text{ €}$$

The investment of equipment necessary for the introduction and proper functioning of e-learning are approximately given in Table 2 and they amount to 22.400 €. So, the investments of e-learning would be:

**Table 2 - Investments**

<b>Investments</b>	<b>Price (€)</b>
Equipment	22.400
Lease mail server	960 (80*12 months)
Costs of professors' salaries	4.200
Setting site	1.440 (120*12 months)
<b>Total investments</b>	<b>Σ 29.000 €</b>

The described variant of e-learning is somewhat cheaper because the Web server is leased (the institution does not have its own Web server). Maintaining the site (or more sites) would be free if the institution employs its own system administrator.

### **REPAYMENT TERMS OF INVESTMENTS**

Repayment terms refer to the amount of time within which the net cash inflow (effect) made due to investment exploitation will pay off the funds invested in its realization. From the point of view of an investor, it is desirable that this period is as short as possible. Repayment term is calculated in years (<http://www.forum.ftn.uns.ac.rs/>) and can be calculated on the base of the equation (3):

$$t = I / NC \text{ (years)} \quad (3)$$

where:

t – repayment terms in years,

I – total invested funds,

NC – net cash (annual) inflow produced by the investment

The annual net cash inflow (net effect) is gained after multiplying the number of enlisted students at the first year of studies by the difference in the amount of money between the old and the new (raised) tuition. In this case, let's say there are 300 enlisted students, and if the tuition is raised (thanks to the savings of e-learning) by 50 € per student, the net cash inflow for only one year will be as follows:

$$NC = 300 \cdot 50 \quad NC = 15.000 \text{ €}$$

Return of investment can be calculated on the base of obtained results by using the equation (3):

$$t = I / NC$$

$$t = 29.000 / 15.000 \quad t = 1.9 \text{ years}$$

The shorter period of return on investment reduces the risk from changes that may occur in the economic conditions. The equipment life cycle has to be longer than the payback period. In our case, the average equipment life cycle is five years; after this period, it is necessary to invest in the existing technology and equipment.

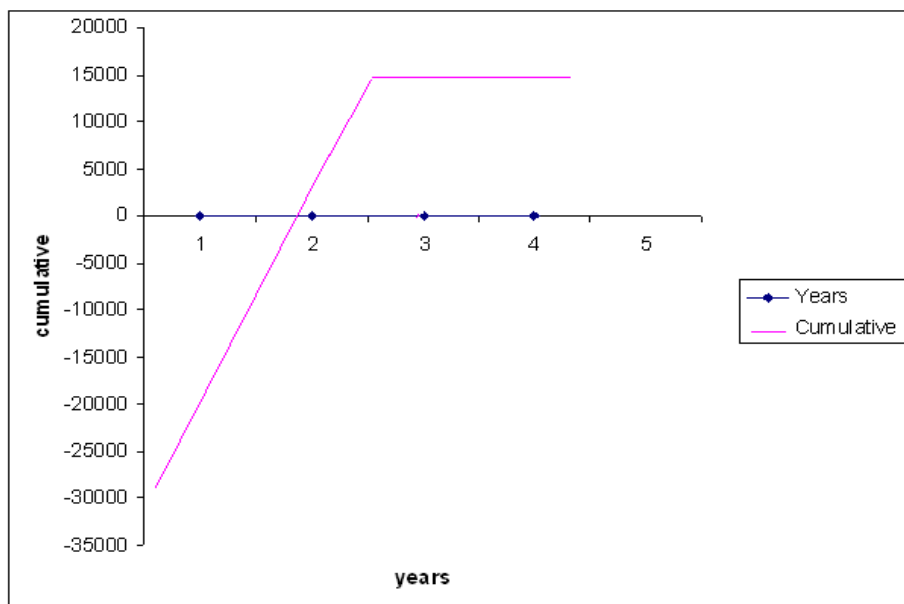
Table 3 shows that invested funds are returned in the second year. The table also shows the annual net cash inflow:

*Table 3 - Cash – flow (€)*

Year	Cash – flow	Cumulativ e
0 – inv. per.	- 29.000	- 29.000
1.	15.000	- 14.000
2.	15.000	+ 1.000

Repayment terms of investments can also be graphically shown (Figure 5). Both the analytical and graphical results have to be identical, which is seen in the following graph:

*Figure 5: Repayment terms of investments*



The criterium used for repayment terms of investments is a simple and popular one. The reason for this lies in its easy application, and investors want to reduce any risks that their funds could be captured for longer periods in the uncertain

future. The criterion is usually applied in the initial analyses when possible solutions are looked for, but it may serve as the main criterion for making investment decisions especially in the following cases:

1. If the main reason in deciding on the company's investment policy is lack of investment funds; in such cases investors want their funds returned as soon as possible;
2. If the rate of technical–technological innovation is very fast; in such cases there is a high risk of technical or technological obsolescence.

As far as the technologies used in e-learning are concerned, both of the above mentioned cases can be true. If a higher education institution with limited resources is in question (either budget financed or self financing), it is of crucial importance that invested funds are returned as soon as possible. If we add to this the fast advance and development of computers and technology, a high risk of technical obsolescence must also be considered. The faster the return on invested capital, the greater the possibilities for investing in newer and more modern equipment. Since e-learning is characteristic of a relatively high rate of return, it may be concluded that it would contribute not only to the business cost reduction but to a high enough return on investment, that is, profit.

### ***CRITERIA RETURN ON INVESTMENT (ROI)***

The ROI criterion is a kind of improvement of the previous criterion as it takes into account the whole duration of the project. This approach - return on investment, known as ROI - was at the core of the control system of 'Du Pont Company' in 1919. Since then it has been used by many companies as the key indicator that a project is fully realized and implemented. The ROI indicator represents the rate of return that a company or economic entity can earn.

One of the most important ROI advantages is directing managers at the main business objective, and that is making as much profit as possible using the capital they have at their disposal. This criterion measures the company's efficiency as a whole, as well as the efficiency of the company's main departments, products and plans. Also, the ROI indicator diverts attention from typical increases in sales volume or deployed means, or even costs, and in that way calls attention to the combination of various factors which increase and encourage business success. (<http://www.forum.ftn.uns.ac.rs/>). Return on investment is calculated in percent by using the equation (4) and (5):

$$\text{Average annual profit} = \frac{(\text{overall revenues}) - (\text{overall expenditures})}{\text{Project duration (years)}} \quad (4)$$

$$\text{Return. of investment}(ROI) = \frac{\text{average annual profit}}{\text{investment amount}} \cdot 100 (\%) \quad (5)$$

If we take that the period, i.e., project duration is five years, then the overall revenues (if all parametres are not changed) will be:

$$UP = 15.000 \text{ €} \bullet 5 \text{ years} \quad UP = 75.000 \text{ €}$$

Since the overall expenditures (in Table 2. Total investments) are already known and they amount to 41600 €, by using the equation (4), medium yearly profit can be calculated:

$$AAP = \frac{75000 - 29000}{5} \quad AAP = \frac{46000}{5} = 9200 \text{ €}$$

By replacing obtained values for medium yearly profit in the equation (5), the return of investment (ROI) is obtained:

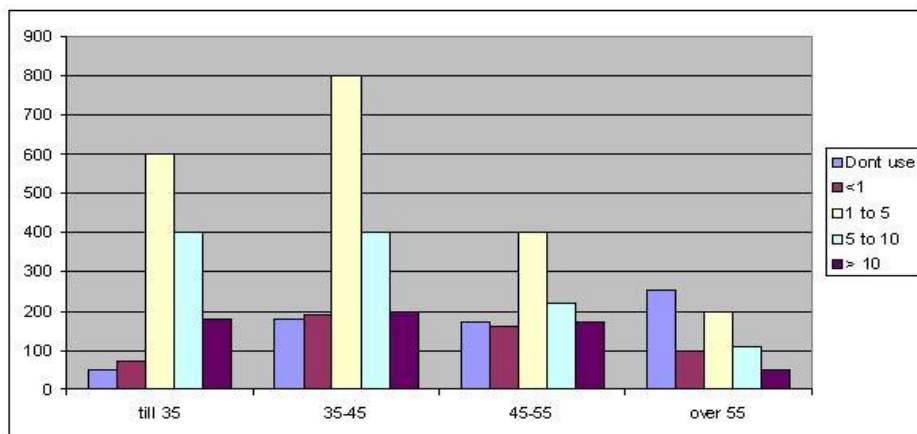
$$ROI = \frac{9200}{29000} \cdot 100 \quad ROI = 31,72 \%$$

This indicator is especially important when ranking a project, whereby the project with the bigger ROI is ranked better.

## **EDUCATION SYSTEM IN SERBIA AND COMPUTER TECHNOLOGIES**

There is no doubt that the introduction of e-learning would lead to certain organisational changes. This means that the very success of its realization and implementation largely depends on the organisational structure. The whole teaching staff should be trained for giving lectures and classes in a new way, in the way of sustainability. An extenuating circumstance could be seen in the possibility that the training could be conducted by the teachers who have already received this kind of education, which would significantly reduce the costs. This training could be carried out during working hours if this would not interfere with the classes. The only obstacle may be people's resistance to change. Older teachers and professors are not very keen on computers or new information technologies. Generally speaking, when Serbia is in question, the practical application of information technologies is at the beginning. The following graph can support the above statement (Figure 6).

**Figure 6** – Duration of computer use with regard to the users' age (<1, 1-5, 5-10, >10 years)

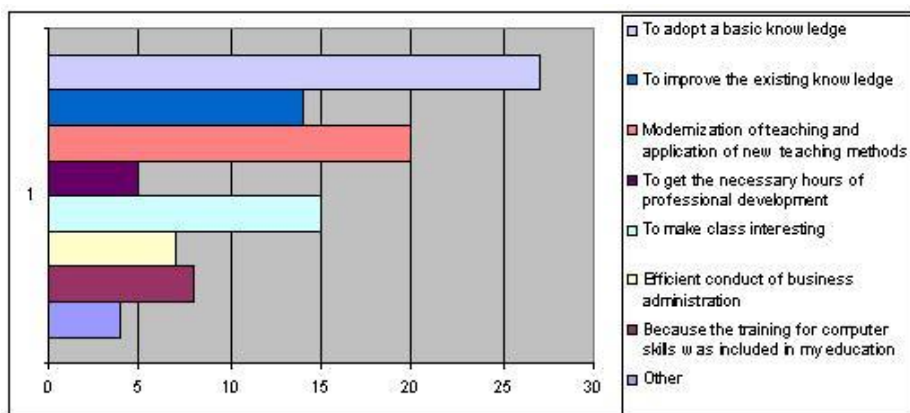


Source: (<http://scindeks-clanci.nb.rs/data/>) 2010.

The graph illustrates the relation between computer use and computer users' age. This data were gathered after a thorough research had been conducted in schools in our country regarding the use of new technologies by the teaching staff. (<http://scindeks-clanci.nb.rs/data/>). The graph shows that the duration of computer use is in indirect proportion to the users' age, that is, the younger the person, the more he or she uses the computer, while the majority of those who do not use it at all are over 55 years old. Computer use in everyday work depends primarily on individual needs. However, a small percentage of the respondents 'have no experience' (half of them over 55) in this field, which shows that teachers mainly have basic or elementary, but insufficient, knowledge regarding the use of the new technology.

The majority of teachers have learned how to use computers either on their own or their friends have helped them or they have attended computer courses. This means that such courses can have a very important role in training the teaching staff. The statistics shows that the main motive for taking computer courses is acquiring basic knowledge in this field. Figure 7 illustrates this.

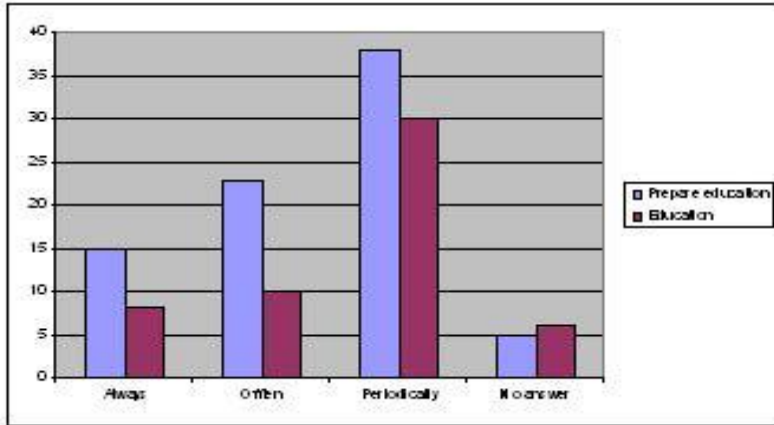


**Figure 7** – Presentation of the main motives for introduction of computer

Spurce: (<http://scindeks-clanci.nb.rs/data/>) 2010.

All the given answers, that is motives, except 'To have the necessary hours of education', basically have a positive attitude to getting computer training. Various seminars accredited by the Ministry of Education are organised with the aim of educating the teaching staff. However, the respondents' answers show that teachers ususally attend these seminars not because they want to gain the necessary knowledge and training but because they have to be present there. However, there is a certain awareness that information and communication technologies are important. The computer courses organised at schools which teachers attend prove this. Another evidence is found in their attitude to this very problem - which was the subjects of the conducted reasearch. Since the overwhelming motive is 'adopting the elementary knowledge in computer use' the questions which impose themselves are the following: what is the subjective level of knowledge teachers tend to gain, and what is the level of knowledge objectively needed to fit into the world trends? The research also showed that computers are used more for preparing the classes than during the teaching it (Figure 8) but this may be related to the problem of whether computer equipment is available in schools in Serbia.

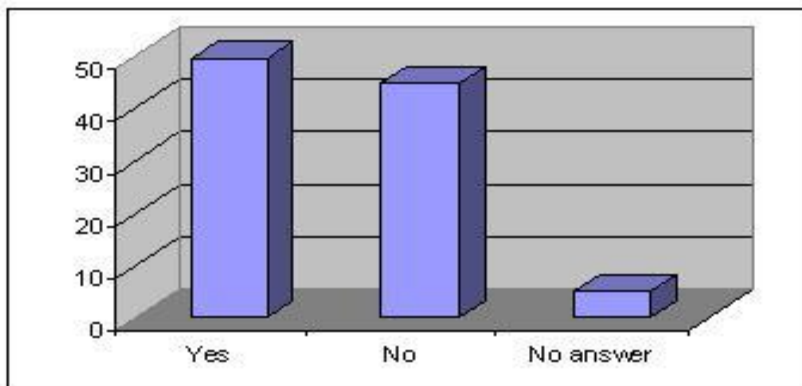
**Figure 8-** Using computers for preparing the classes and during teaching



Source: (<http://scindeks-clanci.nb.rs/data/>) 2010.

The teaching staff in Serbia uses most often those software packages that deal with text processing, which inevitably leads to the conclusion that computers are still viewed as little more than typewriters. The most important data the research revealed is the answer to the question 'Do teachers read the newest reports on computer use at schools and how do they get the news?'. Figure 9 shows that more than 50% of respondents, that is, teachers are acquainted with the developments in the new technologies regarding education, which is very encouraging. Younger people get the news over the Internet, while older teachers watch television and read newspapers.

**Figure 9 –** Monitoring of new technologies in education



Source: (<http://scindeks-clanci.nb.rs/data/>) 2010.

The reasons for insufficient knowledge regarding new technologies could be various, but the most frequent ones are lack of free time and the fact that people do not believe in what is written in the newspapers. Having this in mind, more attention ought to be paid to staff training, and this refers to not only teaching them how to use computers but preparing them how to accept a better, more modern and faster ways of knowledge transfer and the importance of interactive classes. It is, therefore, necessary to enable teachers to be trained, that is, people who are in education but who will use the accredited information science programs have to be given a chance to educate their colleagues and teachers and this has to be the task of both the state and the education system in Serbia. Only the trained staff will be able to transfer their knowledge to the new generations of pupils and students in all fields of education. Human society and its further development cannot rely on human greed, that is, on profit any longer. The industrial age and its postulates are dying away. What is awaiting the whole human community is the first half of the 21<sup>st</sup>C and learning how to use new technologies. The term 'learning' here refers to the use of technologies whose aim is individual development, the development of production and the development of society as a whole. Otherwise, the society will still be only the consumer of technology with no idea of how to use it to its own advantage. As long as man, that is, the whole society with human work and knowledge at its core, does not get into the battle with himself and his deep-rooted habits, things will remain the same.  
(<http://scindeks-clanci.nb.rs/data/>)

## ***RESULTS AND DISCUSSION***

The expenses shown in Table 1 are arbitrary – based on assumptions. Among them there is the expense which can represent a significant burden for an education institution, and that is the publishing of textbooks. Calculated, this expense amounts about 11.200 Euros for four years. If we take into consideration the expenses for preparation of references, including introducing e-learning, that is placing multimedia contents on the platform, for the period of four years for all subjects, they will amount 16.800 Euros. The difference between these expenses amounts 5.600 Euros, in favour of multimedia contents. However, if we have in mind the fact that in recent years the textbooks have been sold less, because generations of students have been using the same textbooks (they exchange the textbooks among themselves), we can conclude that it is useless and very expensive to print a great number of textbooks every year. On the other hand, the scholarship can be increased for 50 Euros per each student, and that sum may be used for covering expenses for preparation of material for e-learning. We can also calculate the sum of expenses for postal and carrier services: by introducing e-

learning, they are significantly reduced. Total expenses for introducing the platform approximately amounts 29.000 Euros. Assuming that the sum for investments amounts 29.000 Euros, while the yearly net inflow based of increased scholarship of 50 Euros per student amounts 15.000 Euros.

Using the criterion of the term for paying back the investment, it turns out that the period of return of investment is 1,9 years, which means that in the first year there are losses, while in the second part of the second year there is the return of investment and profit of 1.000 Euros. Using approximate values for total income and expenditures, we come to the datum that medium yearly profit amounts nearly 7.000 Euros, while in percentage the return of investments amounts 31,72%.

As regards computer technology in educational system in Serbia, researches showed that it is proportionally reversed to the age. The greatest number of teachers use computers from time to time, or they never use it for preparation of teaching hours. However, the encouraging data is that a great number of the examined (over 50%) are interested in development and using New Technologies in education.

## ***CONCLUSION***

To respond successfully to fast changes in business environment, it is necessary for the Top Management Team to choose proper business strategy, that is the managing strategy by which it is possible to adapt to changes, follow new technologies and innovations, but also choose the way of business operations which make minimum expenses. The Project of e-learning is the one which can reduce expenses in university-level education institutions. Before implementation of any project, it is necessary to analyze financial aspects of investing, so that it would be possible to make adequate estimation of profitability, that is validity of investment (the Project). Investment profitability, such as e-learning, the criteria including term of paying back the investment and return of investment, showed that this innovative project is very profitable and contributes to total reduction of expenses of any university-level education institution in Serbia. The time of the return of investment is really very short and amounts 1,9 years. This fact contributes to reduction of risk for changes of economic conditions. Listed reasons are strong enough to justify the investment of introducing e-learning into university-level education institutions. However there is always resistance to changes in any organization, there are also some obstacles that slow down the realization of the project in majority of university-level education institutions. Aggravating circumstances refer mainly to using computers by older teaching staff who never use computers for preparation of teaching hours and in teaching. To prevent this, it is necessary to pay more attention to training the staff and using new technologies. In that way we can use up the possibilities they offer, among which it is surely reducing business operations expenses.

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THE FIRST INTERNATIONAL CONFERENCE  
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***PART TWO***

***EDUCATION'S ROLE IN  
ENTREPRENEURSHIP, EMPLOYMENT AND  
ECONOMIC DEVELOPMENT:  
ADVANTAGES AND PROBLEMS***







## **EDUCATION OF ENTREPRENEURS IN EU**

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### **Abstract:**

*Facing the challenges of globalization process and the trends in the world, the European Union (EU) has chosen the road of its transformation that should lead the Community to a sustainable growth. The goals of EU development over the period from 2000 to 2010 rest on the vision of EU being “the most competitive and the most dynamic economy in the world capable of sustainable economic growth, with a greater number of better jobs and a greater social cohesion.” Despite that that most goals have not been achieved in the period until 2010, the European Commission revised in 2010 its development strategy that rests on similar principles, but with somewhat configured approach to the realisation. The economic aspect of development strategies rests on one side on the development of knowledge as a basis for creating innovations, and on the other hand on the entrepreneurship development that should realise innovations through business activities. In order to play their role well, entrepreneurs must constantly develop new skills and knowledge as to apply innovations. This paper aims to research role of vocational education of entrepreneurs in the development strategy EU from 2000 to 2020.*

**Key words:** *Development, Education, School, Skill*

## INTRODUCTION

In order to perceive the importance and the role of entrepreneurship education in the entrepreneurship development process, as well as the role of small and medium enterprises (SMEs) in the first decade of the 21st century in developed countries, it is necessary to take a look at a somewhat wider picture of the EU development strategy can provide.

The EU economic development rests on the knowledge-based economy and can be divided into two parts. The first part takes place through researches and the development of new technologies. The second relates to applying innovations that should be put into practice through entrepreneurship. There are two connected parts of development where the realisation of one influences the realisation of the other. A successful applying requires both parts to function connectedly.

The entrepreneurship development is one of the key elements in concept when applying the economic aspect of the strategy. In order to help entrepreneurs play their part, measures of support that includes acquiring vocational qualifications for applying innovations, are required from the state institutions. Applying and promoting innovations are a part of a demanding process, where the success of realisation influences the further development of innovations that should as a consequence have a sustainable economic growth. Accomplishing this approach requires constant work on expanding the required knowledge and perfecting entrepreneurial skills through life-long education. Entrepreneurial actions can best be seen through following the performance of SMEs, but also through internal entrepreneurship that can be applied in medium and large enterprises.

This work aims to present relations between education, entrepreneurship and general development of EU, at the beginning of the 21st century.

By a deductive logic method, it should confirm the existence of a relation between the EU development strategy, from a role that is given to entrepreneurship and SMEs, to a vocational education of entrepreneurs. The standard form of categorical syllogism would, in that case, consist of two premises and a conclusion. The first premise is: entrepreneurship is one of the main directions of the EU development strategy. The second premise is: teaching staff education for the purpose of entrepreneurs' vocational perfecting is one of the key requirements for the entrepreneurship development. The conclusion is: one of the key factors of the successful EU development strategy is teaching staff education for the purpose of vocational perfecting of entrepreneurs.

Based on the aforesaid, we take both premises as hypotheses of the research. Thus we have 2 hypotheses:

***Hypothesis H1. Entrepreneurship as one of the main directions of the EU development strategy.***

***Hypothesis H2. The teaching staff education for the purpose of entrepreneurs' vocational perfecting is one of the key requirements for the entrepreneurship development.***

For the conclusion to be true, both hypotheses must be affirmative i.e. confirmed.

The research has been conducted through a deductive, historical, and content analysis method, based on an overview of documents made for the needs of the European Commission (EC).

## ***EU DEVELOPMENT STRATEGY FROM 2000 TO 2020***

In various varieties of its long-term development policy, the EU has tried to reconcile and connect three different aspects of community development: the economic, the social and the ecological aspect.

In order to secure a sustainable growth, each of the aspects in the course of its own development must not develop in a long-term period at the expense of all the other development aspects. The rapid economic growth has up to now developed almost regularly at the expense of abusing the environment, with a considerable disintegration of social structures. In cases where there was a great care for the environment and social development, the industrial growth was recorded to be rather slow event in the world's favorable economic trends. This only points out to the fact that it is demanding to reconcile the three aforesaid development aspects the EU has chosen.

The notion of the sustainable growth was defined by the World Commission on Environment and Development ("Brunt land commission", 1987). "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs".

Lisbon Strategy, known as Lisbon Agenda or Lisbon Process has defined the EU development strategy for the period between 2000 and 2010. The main goal of the strategic development was that EU becomes in: "the most competitive and dynamic knowledge-based economy in the world capable of sustainable economic growth with more and better jobs and greater social cohesion" (European Council, 2000). This defined sustainable growth should provide the EU member states with a more prosperous and a fairer society, a society that should provide a higher quality life for the present and the future generations, while preserving the environment.

The intention was to change various negative economic trends in the EU that could be seen in the productivity fall and in the stagnation of the economic growth, by applying certain policies that all the EU member states are to implement in the period until 2010.

The essence of this strategy lies within the idea of sustainability that should consider all three often opposed demands and provide the further development of the community. According to the European Council, (2000) Lisbon Strategy is essentially based on the economic concept that:

- Preparing the transition to a knowledge-based economy and society by better policies for the information society and R&D, as well as by stepping up the process of structural reform for competitiveness and innovation and by completing the internal market;
- Modernizing the European social model, investing in people and combating social exclusion;
- Sustaining the healthy economic outlook and favourable growth prospects by applying an appropriate macro-economic policy mix.

The appliance of the stated economic principles would secure a better sustainable competitive position of the European economy that would result in, apart from everything else, in increase in employment, higher wages and an overall growth of the quality of life.

The commission headed by Kok stated that even though a certain increase has been noted in the period between 2000 and 2004, most goals have not been achieved. The gap analysis and some inconsistencies in applying policies were present in the political debates of the EU members.

By looking at the oversights in the realization, the Sustainable Growth Strategy with the platform of action, adopted by the European Council in June 2006, was revised.

Several reports that have been submitted by various commissions to the EU bodies until 2010 show that ten years after the adoption of Lisbon Strategy a great deal many goals have not been achieved.

After the analysis and the political debate in March, 2010, the European Commission (EC) adopted the revised version of the strategy under the name Wise and sustainability strategy including the growth in the period until 2020. It was stated in the document that the years of development from 2000 to 2010 were annulled by world economic crisis and that it exposed all the structural weaknesses that Europe economy and society were facing.

The world economy growth faces trends such as the shortage of resources, population ageing with the further development of the globalisation process. Successful world economies are those economies that are knowledge-based and innovative.

Through the revised strategy (European Commission, 2010a), the EU plans to achieve a wise, sustainable and economic growth. The economic growth is expected to increase the employment level, productivity and social cohesion. Three priorities of the further community development have been defined:

1. A wise growth through knowledge-based economy and innovations.
2. A sustainable growth that promotes a more effective usage of resources, “green” and a more competitive economy.
3. Included growth that supports a high rate of employment, social and territorial cohesion.

In this document, the EU (European Commission, 2010a) defines its vision and specific goals that it sets on to accomplish until 2020. The specific development goals are:

- 75 per cent of the population aged between 20 and 64 should be employed.
- 3 per cent of the EU GDP should be invested in researching and development”.
- “20/20/20 climate/energy goals will be accomplished including the growth in reducing the emission of poisonous gasses by 30 per cent ”.

- The percentage of those dropping out of elementary education will drop below 10 per cent, the minimum of 40 per cent of the future generation will obtain at least 3B degree in education.
- The number of people facing poverty will be reduced by 20 million.

In order to develop strategy in the right direction (EC, 2010, p.7), the EU has set up 7 leading directions that should make an improvement in the strategy realisation. Those are:

1. The **Innovation Union**, to support the production of innovative products and services, in particular concerning climate change, energy efficiency, health and the ageing population;
2. The **Youth on the move** initiative, to enhance the performance of education systems, non-formal and informal learning, student and researcher mobility, but also young people's entry to the labour market;
3. The **Digital Agenda for Europe** initiative, to promote the creation of a digital single market, characterised by a high level of trust and a clear legal framework. Furthermore, fast and subsequently ultra fast internet should be accessible to the population as a whole;
4. The **Resource-efficient Europe** initiative, to support the sustainable management of resources and the reduction of carbon emissions, while maintaining the competitiveness of the European economy and its energy security;
5. The **industrial policy for the globalisation era** initiative, to help businesses to overcome the economic crisis, integrate into world trade and adopt more environmentally-friendly production methods;
6. The **agenda for new skills and jobs**, to improve employment and the sustainability of social models. The aim is to encourage the strategies of flexibilities, worker and student training, but also gender equality and the employment of older workers;
7. The **European Platform against Poverty**, to increase cooperation between EU countries, and to follow the Open Method of Coordination in the areas of social exclusion and social protection. The objective of the Platform is to be the economic, social and territorial cohesion of the EU, and the social inclusion of people experiencing poverty.

Each member state is obliged to in accordance with the set goals and the current situation design its own plan of activities as to put the goals into action.

## ***The role of entrepreneurship in the EU development strategy until 2020***

“Entrepreneurship is the mindset and process to create and develop economic activity by blending risk-taking, creativity and/or innovation with sound management, within a new or an existing organisation.” (European Commission, 2003, p. 6)

One of the short definitions of the entrepreneurship defines it as an ability of an individual to turn business into actions, from the standpoint of creativity, innovations, risk taking and a successful management. Because of the connection between the mindset, the system of values, entrepreneurship activities and personal values, many authors define entrepreneurship as a life style that is intertwined with a constant search for new market opportunities.

Entrepreneurship is connected to creation of an economy value by looking for market opportunities, applying innovations and risk taking. Profit is usually defined as a reward that an entrepreneur receives on the market for a well-done job. Entrepreneurship is connected to enterprises of different sizes, as well as various ownership structures, profitable or non-profitable character of business.

The entrepreneurship development influences job creation and economic growth by developing new small and medium enterprises rather than the large ones. Countries where a significant growth of entrepreneurship activities is noted, almost as a rule display an increase in employment and SMEs rate.

In its own way, the employment rate increase secures a higher cohesion among various social structures and population groups, where those groups with a certain degree of disability and special needs belong.

That is the reason why the EU placed entrepreneurship needs and supports SMEs as a target idea of Lisbon strategy development. On one hand, it represents a way to apply innovations and a knowledge-based economy growth, creating new jobs and, on the other hand, a greater social cohesion, of both social groups and differently developed geographical regions. The entrepreneurial activity is, as a rule, a dynamic process that aims to use market opportunities through globalisation technological advancements or a new market development. This is usually achieved by founding new SMEs. In the economy of developed countries, a great number of people, who are able to work, is employed in SMEs.

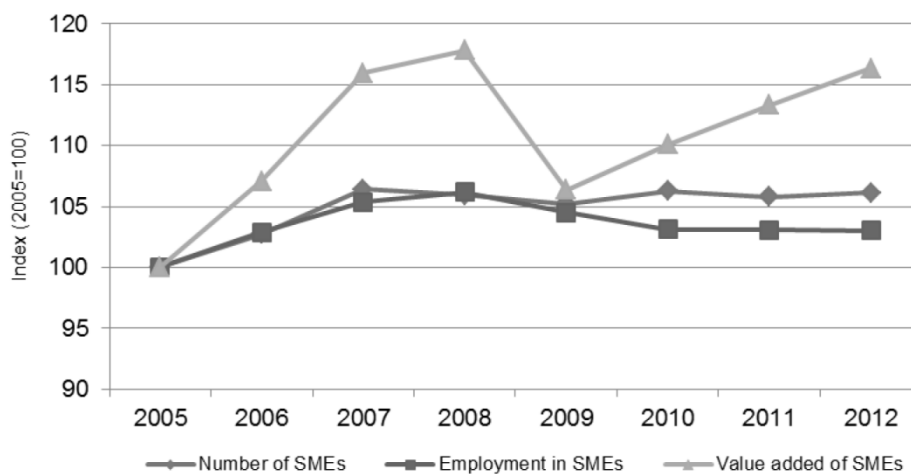
According to the report (Kok et al., 2011) in the EU, SMEs account for 99.8 per cent of the total number of enterprises, with 67 per cent of the total working force being employed in SMEs. This report also states that SMEs in the period between 2002 and 2010 created, on average, a great deal more jobs (85%) than large enterprises (15%), despite the unfavourable global economic movements. The picture no. 1 (Figure 1) shows the ratio of SMEs number, employment in SMEs and value added on SMEs.

According to the European Commission in 2003, structural changes in European economy showed that comparative advantages lay in business activities related to the intellectual property based on applying the method of obtaining knowledge. That view has opposed to the original belief that solely the amount of capital employed and economies of scale directed the economic growth towards large enterprises.

Many authors point out that flexibility and the speed of adjusting to changes are becoming the survival imperative in the uncertain business environment of the 21<sup>st</sup> century. Flexibility is a trait of entrepreneurial activities of SMEs rather than large enterprises or multinational companies. Large enterprises still have use of economies of scale and diversity, but also the possibility to apply intern entrepreneurship.

That is why the development traits of SMEs are perceived as a measure of business activities of entrepreneurship. SMEs are seen as a form of organisation that enables entrepreneurs to achieve their business activities. According to the same source, countries that show high rate of EMS growth are almost always those with a low rate of unemployment.

**Figure 1:** Number of SMEs, employment in SMEs and value added of SMEs (2005=100)



Source: (Kok, et al, 2011).

Note: 2011 and 2012 figures are estimated.

In the EU documents, SMEs are seen as the spine of the EU economic growth. The revised Small Business Act (EC, 2008) promotes the role of entrepreneurship and SMEs as a set goal of the EU development strategy by 2020. SMEs must contribute to the accomplishment of ambitious goals of Europe's development,

with a special emphasis on: adopting innovations, improving the competitive position, creating new jobs, improving the quality of life and a higher social coherence. The EU and its bodies are obliged to improve: ways of assessing and following SMEs, regulatory, administrative and business environment.

The SMEs role in conducting the EU strategy is more precisely defined by the Small Business Act (EC, 2008) with 10 principles that define policy applying. Those are the following:

- Creating environment in which entrepreneurs and family business will prosper and entrepreneurship will be awarded.
- Quickly give a second chance to fair entrepreneurs who have faced bankruptcy.
- Create rules in accordance with the Think small first principles.
- Make public administration suitable for the needs of SMEs.
- Adjust public policies to the needs of SMEs, raise the voice of SMEs in procurement and secure a better use of aid for SMEs.
- Secure SMEs the access to financial resources and create a legal and business environment that will support payment on time in commercial transactions.
- Help SMEs turn challenges of the environment into development possibilities.
- Promote skills enhancing in the domain of SMEs and all sorts of innovations.
- Help SMEs turn environment challenges into the development possibilities.
- Encouraging and supporting the benefit of SMEs from the unified marketplace and market growth.

## ***VOCATIONAL EDUCATION OF ENTREPRENEURS IN EU***

At the conference in Oslo, under the name “Entrepreneurship education in Europe: Encouraging entrepreneurship education through education and learning”, in October 2006, The European Commission (EC) wanted to exchange positive experiences among the delegates and thus improve the practice of the entrepreneurship education in the EU member states based on experiences and facts collected by the member states. The conference comprised the discussion on developing the entrepreneurial way of thinking, especially of all young people through all educational systems from elementary school to higher education.

What most delegates present agreed on, was that the range of education should be significantly wider than the usual business starting training that has been a most common form.



The program expansion should refer to the development of personal abilities and skills, such as: creativity, personal initiative, risk taking ability, encouraging self-assessment and many others. As a way of realisation, apart from the offers of a standard educational system, a wide spectrum of possibilities has been offered. It was stated that what should be found are ways to include successful businessmen into educational process as to pass their own knowledge to young people in a way that would include them in entrepreneurial projects.

Policies must be applied and commissions that would supervise the applying of the suggested policies must be formed. There must be a provision of financial resources that would support entrepreneurial educational projects, such as the existing Comenius, Erasmus, Leonardo da Vinci and new programs that support lifelong learning. The aforesaid programs are positive education and experience programs that have been presented by various delegations (Scotland, Norway etc.), and referred to a teacher education training program for entrepreneurs.

Based on discussions, exchanged experiences and opposed opinions, the conference conclusion has a main goal to make a significant systematic progress in the development of entrepreneurial way of thinking by means of an enhanced entrepreneurship education. The conclusion should suggest another framework for policy making and the further development of the entrepreneurship education.

The framework for policy development of entrepreneurship education, known as Oslo agenda (EC, 2006), contains initiatives that sharply refer to:

- Perceiving entrepreneurship as a business mindset.
- Framework and guidelines for policy development of entrepreneurship education from primary school to university.
- Support of educational institutions and various systems of formal and informal education.
- Support teacher training as a critical factor in successful entrepreneurship education.
- Support the introduction of entrepreneurship to schools and universities for entrepreneurial education and entrepreneurial skills development.
- Lifelong education of entrepreneurs with a special emphasis on young generations education.
- Establishing and building a bridge between the education system of entrepreneurs and economic environment and practice of economy.
- Communication between interested parties, raising awareness of the importance of entrepreneurship for achieving the development strategy.

The role of staff education is seen as one of the critical elements of a successful education that must be of a wider range than the current educational systems, whose main goal is helping the entrepreneurs start their own jobs.

Education, among other things, should comprise tutoring and lecturing from successful businessmen that should share their own successful practice.

Abandoning the very theory and increasing practical work should be a basis of the enhanced entrepreneurship education.

This initiates a development of Public Private Partnership between public institutions and successful entrepreneurs that are socially responsible. This way, successful entrepreneurs would dedicate some of their precious time to share experience and introduce young generations to work. This relation does not primarily have to be commercial. Entrepreneurs would become donors of their entrepreneurial experience and time to younger generations. The list of initiatives includes other proposals that can enhance a good practice, such as connecting and sharing the network of the teaching staff and its migration.

Still, all the stated proposals and initiatives given by the delegates are not enough unless they become politically supported and unless the projects related to entrepreneurship education are adequately financed.

It is also necessary to create bodies that would supervise the implementation and the development of good practice. They would help to measure and evaluate constant improvement in goal accomplishing.

According to (Baldassarri, 2006) the teaching staff education should include:

- Conduct of a research to find best practices on how teachers should approach the education of entrepreneurs.
- Offer initiatives and full-time teaching staff education
- Development, creation and dissemination of good teaching practice, tools, methods, and materials exchange.
- Make room in the curriculum to test new methods of education.
- Establish a network and tools of support.

According to the same source, the role of the ministries is also important before they are expected to influence the development. This development should include: curriculum changes, modernizing the ways and methods of education, young generations stepping of the solely theoretical framework and gaining more independent experiences through active participation. The existing programmes, that were of a more general character, including theoretical knowledge, should be directed towards the needs of developing more specific entrepreneurial skills and personal experience.

This must be accomplished with a key change and the role of the teaching staff that creates and realizes the set curriculums. What training the teaching staff to take an active role in designing and accomplishing the set goals does is to lead to the demands for their education and spreading good practice. By applying the principle of life-long learning a greater number of students is expected to be included into the active process of studying, through various workshops, studies of cases, developing creative thinking and forming and leading school's mini companies that would be a part of the practical experience of entrepreneurs.

According to the aforesaid document, the entrepreneurship education system should consist of transformation of the existing system and a development of new methods and ways of training entrepreneurs.

The report by a group of experts of the EC under the name *Entrepreneurship in Vocational Education and Training* represents the continuation of work on the development of policies and good practice of entrepreneurs' education (European Commission, 2009).

The experts' report by the European Commission (2009) states that entrepreneurs should think creatively and solve problems successfully in order to effectively put ideas into practice. Entrepreneurship education can be particularly effective in the initial stage of professional education when students make decisions about their business career, where seeing yourself as unemployed can be one of the options.

Vocational Education and Training (VET) can have several forms. The experts' report (EC, 2009) primarily refers to the initial education in high schools. Entrepreneurship is a part of educational system of professional training in most European countries where a majority of students undergoes some sort of entrepreneurial training as a part of their high school syllabus.

There still is a gap between spaces that should be filled with additional programmes that would introduce students into the world of entrepreneurship. This only points to the fact that the educational system in the RU is still far from answering the demands of the high school entrepreneurship education.

One of the main reasons for the current state of affairs is inadequate teaching staff education. The problem lies within their lack of practical skills and experiences in the field of entrepreneurship that should be passed on to students during their high school education. This is a problem that should be solved as soon as possible in order to enhance the entrepreneurship educational system.

Various courses and the teaching staff training programmes have been started as to improve the lack of teachers' personal experience. However, many administrative and other problems have sprung up here preventing the cooperation between schools and enterprises. It is particularly difficult to establish cooperation between schools and micro enterprises that are quite interesting for the entrepreneurs' self-employment.

In order to improve practical skills of high school students, their active participation in practical projects is supported with learning through work being the main way for gaining the entrepreneurial knowledge and skills. The projects, that are oriented towards problem solving and gaining practical skills, are seen as the key factor in gaining necessary practical skills.

Apart from traditional lectures, most common methods in the professional entrepreneurship education include: computer simulations, business games, students (virtual) enterprises, project and teamwork, visits to enterprises etc. Despite the improved methods, when compared to those used in the traditional

educational system, the gap between the needs of education and the goals achieved is still big.

From all the above stated, a conclusion is that the teaching staff education and training is of key importance in the entrepreneurial education. It is believed that the teaching staff are still not systematically trained for its role. That is why there are proposals to hire external organisations that are specifically prepared for that purpose.

Constant modernisation of teachers' education, according to the needs, can be one of the important demands of the national educational system. In order to support the appliance of this policy, supervising bodies, whose duty would be to follow the improvement and process applying. Their results in this field would be published in the reports to the ministries and the public.

This would make students realise that the development of the entrepreneurship is a clear, long-term strategic goal. Emphasising the importance of the entrepreneurship would make it easier for the teacher to pass their knowledge on to the students.

### ***Vocational Education of Entrepreneurs in Elementary and Secondary Education***

According to the report of the Education Audiovisual and Culture Executive Agency, in 2012, 31 countries that participated in creating the report on entrepreneurs' education pointed out that teaching staff education for the purpose of training entrepreneurs is the key activity in elementary and secondary education. In order to support this process, some action programmes have been started that are supposed to realise this activity on a national level.

Generally, all the delegates have stated that as an important matter and recognised it as a problem that should be solved. Some countries have incorporated the teaching staff education for the purpose of entrepreneurs training into the system of formal education, the other group of countries have developed more special programmes that are intended to educate the teaching staff.

Two thirds of the European countries have incorporated entrepreneurship in some form of the youth's educational programmes. In the basic educational system, the entrepreneurship is more of an extra-curriculum activity, whereas in higher education, there is a more prevalent stand view that entrepreneurship should be a part of the obligatory educational system.

The aforementioned report states that a majority of the European countries sees the results of the entrepreneurship educational system as different aspects of the entrepreneurial behaviour. Those are: entrepreneurial attitudes, knowledge and skills.

The majority of countries didn't share the view that gaining practical entrepreneurial skills should be included in the elementary level of education. It was stated that the theoretical knowledge of entrepreneurship is sufficient at this level of education.

When it comes to secondary education, it is thought that learning about entrepreneurship and acquiring entrepreneurial skills should be altogether present. In order to support the initiative, different sorts of cooperation between high schools and economy organisations, projects, financial supports and issuing certificates to entrepreneurs have been established.

The majority of the EU countries has seen the importance of this project and undergone some form of transformation of the educational system as to improve the entrepreneurship education.

### ***Vocational Education of Entrepreneurs in Higher Education***

After Oslo Agenda, a greater number of researches have been conducted regarding the entrepreneurship education of students. According to the European Commission, in 2008, Europe should make special efforts to form the entrepreneurial mindset of younger generations as to encourage them to innovatively start running independent businesses, develop the entrepreneurial culture, and encourage the overall development of SMEs.

The report states that the current education of students, as entrepreneurs to be, should not be only oriented towards starting a business, but should be significantly broadened towards improving the required knowledge and skills that should help them put their ideas into practice. The young people's competence development should encourage creativity; develop their self-assurance about their own capabilities of realising ideas.

The very Bologna process can have positive effects on the way of spreading entrepreneurial ideas in the educational system. At the meeting held in May, 2007, 46 signatory states of Bologna agreement adopted similar recommendations, believing that entrepreneurship should be included in the system of higher education in a flexible way that does not always have to be formal. This way of education means flexible syllabi, the mobility of the staff, co-operation between universities when creating a scientific basis, creating and transferring innovations.

The report states that studying entrepreneurship in higher education is not sufficiently integrated into the formal educational system, which is illustrated by the data presented. This could be particularly seen in cases of the countries that joined the EU after 2004.

The discussion heading that way, whether the existing business schools are an adequate environment for the development of entrepreneurship, led to the support

of interdisciplinary teaching approach, an approach that would connect economic, technical and other domains. It has been stated that there is a shortage of financial resources and the adequately trained teaching staff for this way of entrepreneurship education.

Faculties are thought not to support connecting the various scientific fields enough and are thought to be staying in the domain of only one discipline. When it comes to higher education, what should be enabled is a higher participation in studying and researching the appliance of entrepreneurship, at all levels of higher education of students, from the undergraduates to doctoral studies.

Applying the method of learning that refers to the experience transfer and active students' participation in gaining their own experience is considered to be the most important element of the future entrepreneurs' education. Alumni associations of students are not engaged enough in this process. The existing theoretical approaches have showed as insignificantly efficient in this type of education, thus the effects of the development of the entrepreneurship mindset have been wearing off. It is necessary to introduce much more active learning and cooperation in several various fields.

A lack of practical entrepreneurship experience is here perceived as an important restricting factor in the successful entrepreneurship education. It can be added that there is no sufficient cooperation, neither between researchers and teachers, nor between higher education institutions, which contributes to a weak expansion of good practice.

Measures of policies that should encourage and support the transformation of the educational system are seen as a way to enhance it, without jeopardising the autonomy of the university.

The continuous assessment of including the entrepreneurship into a higher education system of the youth, effects and restrains, and good practice are stated as methods of applying policies in some EU countries, but also in the EU in whole.

The report *Effects and impact of entrepreneurship programmes in higher education* by the European Commission (2012) follows further impacts of the entrepreneurship mindset development in case of students. Entrepreneurship education is said to have the main goal to develop key individual abilities by means of life-long education.

The European Commission (2012) stated that entrepreneurship education should be realised by accomplishing these goals:

- Developing young people's entrepreneurship mindset that would help them be creative, self-assured, so that they would be desired by employers.
- Support the start up of an innovative business
- Improve their role in society and economy

There are many restrictions in the way of the entrepreneurship education, from insufficient human resource to insufficient resources to finance this way of education. What the community has been asking for is the impact of a better

teaching staff education on the education of the very entrepreneurs. Entrepreneurship education is seen as a way to improve the social inclusion. By increasing the number of entrepreneurs, as well as different social groups, has its effects on both social and economic structure. In both cases there is a positive effect that should be connected to life-long learning and key competence creating.

### ***Teaching staff education as a critical factor in entrepreneurship education***

The report that has been made for the needs of the European Commission (2011) shows that previous experience pointed to a dominant impact of the educational system on forming an entrepreneurship mindset. The very teachers and applied methods of work have the key role in that process. This would mean a change in the existing way of work and emphasis on a more interactive work that students are supposed to get familiar with through workshops but also through a co-operation between institutions of the educational systems and enterprises. This would significantly change the way of work and the organisation that the existing formal system of education has had.

Teaching staff is the core of these changes. It must be equipped with suitable skills, knowledge and attitudes to be able to help students get to know all the necessary requirements and to help them gain the desired competence. The teaching staff is the main agent of the expected changes in education. Gaining key entrepreneurial competence is not a simple process that can easily be done.

It is more important to direct entrepreneurship education towards ways of developing entrepreneurship mindset and solving business problems than to train them how to run their own businesses. This leads to creating an entrepreneurship culture as a result of work of a greater number of individuals.

This defined entrepreneurship education can be achieved through entrepreneurs training programmes that would help them gain their own experience and knowledge. The traditional way of education is said to be too passive for gaining your own knowledge and skills, and this should rather be done in a real (simulated) environment.

What is required is an active approach and methods that would motivate people to, with the help from the teaching staff, undergo this process. The teaching staff education is thought to be the key element of this approach.

This would significantly change the existing way of teaching staff education. Creativity, as one of the main skills that has to be built, is poorly embedded in the existing educational system. A conducted research shows that 90 per cent of the teaching staff would love to take up some of the courses on creativity development. Teachers said that the environment in the educational system is neither used to nor does it entirely support creativity and innovative work.

Innovative culture development should encourage anyone trying to, through learning, explore, new possibilities. It is necessary to create an innovative culture that would support even failures on that journey.

That is why teachers themselves must change the way of work and form new methods of knowledge acquiring. In order for this to happen, it is necessary to change the way teaching staff prepares for their work. A positive atmosphere of experience exchanging, good practice forming and life-long learning must be created.

Perceiving the teaching staff as a key element that the success of a young entrepreneur's education depends on, the EU ministers, have agreed, at their meeting, that the quality of the teaching staff education is crucial for the entrepreneurship education. Priorities of the teaching staff education are:

- Improving teaching staff competence that should equip the staff with necessary pedagogical skills and knowledge, so that they could successfully transfer knowledge to their students.
- Improving the initial teachers' education, that can be done through higher education and that should reconcile research and teaching practice.
- Securing the quality of people who are to train the teaching staff through a programme of training and who are to gain solid practical teaching experience by displaying high academic standards.
- Promoting professional values and behaviour in the teaching staff training, where the trainer is required to adopt the notion of independent learning, researching and cooperation with colleagues.

## ***RESEARCH RESULT***

According to the above arguments and conclusions set forth in the section of this paper entitled Strategy of the EU by the year 2020., and originally contained in these documents and policies of the EU, it can be concluded that the Hypothesis H1: ***Entrepreneurship as one of the main directions of the EU development strategy is confirmed.***

Based on the aforesaid arguments in the chapter Vocational education of the entrepreneurs in the EU and conclusions that EC made in its materials, based on analysis and conducted researches, it can be stated that the hypothesis H2: **the teaching staff education for the purpose of entrepreneurs' vocational perfecting is one of the key requirements for the entrepreneurship development is confirmed.**



## ***CONCLUSION***

Based on the fact that both hypotheses, as premises are affirmative, and based on the applied method of deductive logic reasoning, it can be concluded that **the teaching staff education is one of the key elements for the success of the EU development strategy.**

Even though the documents that refer to the teaching staff education do emphasise the importance of teachers' education, there still remains room for researching methods and tools of a successful effects applying.

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# **IMPACT OF HIGHER EDUCATION AND INNOVATION IN THE DEVELOPMENT OF SERBIAN ECONOMY COMPETITIVENESS**

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## **Abstract**

*In this paper the connection between innovative activities and processes of higher education is considered from three aspects: operational, tactical and strategic. The first two relate to individual entrepreneurs, or to use its resources and permanent acquisition of knowledge in this area. The third aspect, but no less important, is the development of an optimal relationship between the state as an institution (public management) and entrepreneur manager. This requires the establishment of a national strategy Optimum development of permanent acquisition of knowledge through a holistic education system. So, if we start from the knowledge that the management of knowledge a good entrepreneur can use the resources, and not just its already borrowed, as the necessity arises Request Manager uses the synergy individual with an entrepreneurial segment of society (especially in the field of small and medium-sized enterprises ). In this context, the necessary and sufficient conditions can be provided at the national level, the implementation of modernization and development of process knowledge to all three levels analyzed. The results discussed problems indicate that the effectiveness of government measures analyzed in terms of, have positive and far-reaching positive impact on the competitiveness of the Serbian economy.*

**Keywords:** *innovation, management, education system, entrepreneur, strategy development, knowledge.*

## ***INTRODUCTION***

Socioeconomic changes that accompany the expansion of modern technology, assume highly educated people are able to function effectively in social processes and using available technology. These are the forms of social organization based on knowledge and education and learning, which have the status of the basic instruments of the overall social development, and solving basic social problems and initiating social, economic and technological changes.

From the point of view presented, Serbia still lags behind in the development of entrepreneurship adapted to the transition process, which is especially true for the relations between the authorities and entrepreneurs, as well as potentially unavoidable bearers of economic development. It is irrelevant whether they are individual entrepreneurs, their professional (branch) associations, or the state level strategists. This conclusion can be extended in the claim that this was a very important cause of the recession in which the economy of Serbia today.

The development strategy of the Serbian economy should be based on an open market economy, in which the core of the economic structure is small and medium enterprises and private property which will be the main form of ownership, which contributes to the development of a flexible and competitive labor market. A particular problem for the Serbian economy is the unfavorable educational structure of the population, but also the knowledge and skill of the active population, which almost does not correspond to the needs of the economy. On the other hand, the complexity of this problem is reflected in the fact that this is the basic premise and condition for socioeconomic transformation in the process of integration of Serbia into the European Union. Namely, the EU insists on a highly educated workforce, prepared to be in the performance of their job quickly adapts to new technologies and to be in search of a job moves through the regions, industries and services.

### ***The materials and methods applied***

In developing problematic this study used the following materials: studies and articles, documents of the European Union and the Republic of Serbia, reports and publications (national and international). We analyzed existing data and trends in the field of innovative activities and processes of higher education, as well as measures affecting the sector, issued by the Government of the Republic of Serbia, including: qualitative methods and descriptive analyzes. This approach is necessary because there are no universal patterns in the domain of the considered problem, and the conclusions that are formed by these methods are valid in defining international symbolic systems, and apply to entities strictly established international interaction in the context of a particular time.

## ***TECHNICAL AND TECHNOLOGICAL DEVELOPMENT, INNOVATION AND HIGHER EDUCATION***

### ***The impact of technological development in the education system***

In almost all empirical studies education is viewed as an important factor in the growth of labor productivity. Many researchers have rightly pointed out that the declining trend of research and development acts as a factor slowing productivity growth. Expenditure on research and development, as a condition of technological progress, indirectly cause the growth of labor productivity, depending on the size and location of the rational means, but more importantly from their structure by source of funding and by industry (Audretsch, 2007). However, labor productivity growth can be caused by significant technology transfer, rather than invest in their own research. The concept of endogenous technological progress implies a time lag between their research and production applications. In this sense, there is a difficult question, which relates to the quantitative valorization of the role of new knowledge realized through capital (Morrison, 1991).

The latest research on the effects of the growing importance of quality education to labor productivity growth pointed to the fact that education is becoming a significant source of growth, particularly in periods of economic downturn (Psacharopoulos, 2002). In this regard, it has been confirmed that the investments have real effects if they are not related to education employees, which means that it is the complementary of education and technological progress, with the flow of innovation directly associated with the amount of expenditure for investment and development. (Psacharopoulos, 2008).

New technologies make it a challenge for change in the education system, which caused the abandonment of the traditional narrow concept of human labor quality and skills, as well as the ability of the education and practice which meets the requirements of the job. They insist on continuing education as an instrument for the realization of vertical mobility in the career of the individual and the use of human abilities such as initiative, creativity and innovation (Von Borgstede, 2002). The main type of innovation in the modern economic development based on research activity (knowledge based innovation), which is based on the convergence of different kinds of knowledge and the time shift from the time of emergence of new knowledge and its implementation as a new technology (Drucker, 1994).

In terms of diffusion of innovations four different problem solving approach, namely: development perspective, the perspective of adoption, market outlook and perspective adjustment (Brown, 1981).

Developmental Perspective explores depending launch and diffusion of innovations, and explains how macroeconomic indicators affect the diffusion of innovation and the effects of innovation on economic growth. The prospect of adoption (Adoption Perspective) shows that the diffusion of innovation is determined by certain characteristics of innovation and social and psychological characteristics of potential adopters. Potential adopters innovation goes through five stages of thinking: knowledge innovation (konsolledge), construction of attitudes toward innovation (persuasion), the acceptance or rejection of innovations (decision), the application of innovation (implementation) and the review of the decision (confirmation). In doing so, the course of the process of diffusion of innovation can be interpreted as "the process of imitation" and as "the process of infection." In the first interpretation assumes that only individuals known for innovation and innovation potential adopters is likely to adopt the communication with the individual who has already accepted the same and whose knowledge is a favorable environment (often act as the "epidemic"). Another interpretation explains the course of the process of diffusion of innovation based on the assumption that "infection" does not come within contact range of potential adopters than the mass of communication which is covered at all times and one of those who are not informed, and who will become the conquerors of innovation (Fagerberg, 2003 ).

Market and Infrastructure Perspective in the adoption of innovations based on the involvement of suppliers in the innovation model. Models of diffusion of innovations, which start from the perspective of the market, make the synthesis model "adopting the perspective of" macro-analysis and marketing-mix models, which are based on the concept of the product life cycle. In this model, instrumentation sales affect the diffusion of innovation. Finally, a perspective adjustment (Economic History Perspective) is based on qualitative changes, so that the end product of the diffusion process can hardly be compared to the same initial product (Crandall, 2005).

## ***Education in Europe***

Education is a major factor of economic and social development and is one of the key factors of improving modern social and economic relations in Europe. The generation of today is educated entering a world that is changing in all spheres of social life: economy, culture, politics, science, technology, and social relations.

The main requirements for the quality of educational institutions are determined by the new changes and trends that affect the cultural life of Europe, as well as a significant increase in demand for higher education, Internationalization of education and conduct research projects, the development of effective cooperation between universities and industry, the reorganization of knowledge, the emergence of new needs in education and the like. Under the influence of these

changes occurred and new expectations that European universities have to meet, with a special emphasis on the need for:

1. Providing the necessary resources, except for state funding, it is necessary to find new funding sources, such as private donations and the sale of services (development projects in the business sector);
2. The improvement of the process of scientific research and teaching (teaching content, teaching methods, assessment methods, etc..)
3. Increasing the international attractiveness of European universities, which involves attracting and retaining talent from around the world.

The main strategic issues in the European framework are: lifelong learning, the concrete future objectives of education and training, promotion of mobility, the development of e-learning and the strengthening of international cooperation (Quality culture in European universities, website 17).

## ***Education in Serbia***

When it comes to education in Serbia, it is necessary to point out that the reconstruction and transformation of education constitute one of the key prerequisites for the overall socioeconomic development. In this context, investment in education and in human resources given the character of investing. Therefore, education policy is not only a politics of human resources, but is part of the overall development of policies. What makes this policy very specific is its very long-term strategic character. Conceptual errors in education policy delayed but serious consequences, which were first seen in the labor market in the quantitative and structural disconnect between supply and demand of labor, so that eventually manifested itself in the general economic stagnation.

Given the above, it is clear that the Serbian education system has to go through the process of reforms, in order to ensure the improvement of quality management system and transform the system of financing education, involve stakeholders and social partners and ultimately ensure effective transfer of knowledge. The process of education and training should provide professional preparation in which the individual can get those skills that will help them to easily adapt to changing work demands. In accordance with this understanding of the content of education must be oriented towards the requirements of the labor market, as well as directly focused on the business or profession, or a combination, which includes providing both general and vocational theoretical education. How much and how these elements are adjusted depending on the uniqueness of the national system of education and training. So in Serbia strategic framework for education reform predicted that the development of education should be adapted to the new challenges brought prosperity, but also require adequately educated and trained individuals (Knezevic & all, 2004).

To fulfill its role, which stems from the new socioeconomic framework of the Republic of Serbia, education should provide:

- Attractiveness and accessibility for all: students, adults, the disabled, those without proper input qualification;
- Meeting the needs of the labor market;
- The basis for lifelong learning and continuous training and prepare young people for active citizenship;
- Flexibility - especially when it comes to the system of assessment and evaluation, the certification process, the diversity of the program, the links between formal and non-formal vocational education;
- Effectiveness - to enable all stakeholders to achieve the desired level of qualifications and to provide an opportunity for continuing education;
- Cooperation and involvement of all relevant stakeholders such as governments, social partners and parents;
- Integration - each level has to prepare for the next level and to provide a passage from education to training and back;
- Rationality - that makes optimal use of available resources in order to provide all types of education and training;
- Functionality - to be simple in terms of organizational structure and division of responsibilities for implementation;
- Rationalization and harmonization of the vocational schools network with the needs of the economy, labor market and employment policy and the desires and abilities of students;
- Development of educational standards;
- The quality of vocational education and constant monitoring and evaluation of the results of students and teachers, and school or educational institution as a whole;
- Better vertical and horizontal mobility of students within the vocational education and their further progression;
- Requirements for continuing professional development of teachers and the overall professional development of teachers, the introduction of new teaching methods (group work, interactive learning, project work, problem solving, etc..)
- Updating of equipment and teaching materials;
- Independence and strengthening of school in the new conditions, connecting with the local community, the needs of the local economy, the search for new ways of financing;
- Director of Training and capacity building to new working conditions



## ***The system of education quality***

There is no single universally accepted definition of the concept of quality in education, but derives its meaning from a range of criteria, such as "fitness for purpose", zero error, customer satisfaction, excellence, cash equivalent, transformation, increasing the value of (the process of institutional change) and control as a process of punishment/reward as a function of quality assurance.

The criteria of quality in education can be classified into two groups: the first relates to the quality of output and the definitions that include the quality of the process in terms of the development and the implementation of other educational and training institutions.

The first case focuses on the quality of the output - the results of activities of educational institutions, such as compliance with the purpose of the institution, achieving excellence in work and satisfaction, and students.

In another case, a quality educational activities that institutions provide desired results: the governance structure of the organization, decision-making and administrative procedures, which means that the quality is understood in this context means the dependence on the effectiveness of internal values and institutions.

The new trend in the world, in addition to meeting the standards are set at higher levels, quality means creating more education to local needs and expectations. This approach to quality assurance aims to provide professional, responsible and legal operation, and improvement of the organizational capacity of schools (OECD Review of Evaluation and Assessment, Website 13).

## ***LAGGING BEHIND OF SERBIAN ECONOMY IN THE USE OF SCIENTIFIC AND TECHNOLOGICAL RESOURCES***

The transition from a centrally planned to market-oriented economy in the early nineties of the 20th century, the process of restructuring began with the simultaneous process of liberalization in international trade, that powerful opening of the domestic market. This process, together with the privatization, should contribute to significant changes in the structure of industrial production and presentation of comparative advantage in international trade Serbia. However, structural changes in industrial production led to a significant decline in the agricultural and food industries, which are the beginning of the transition, was the most significant component of total Serbian exports. In addition, the production decline in industrial sectors with higher added value. The results of empirical analyses indicated a significant loss of comparative advantage in traditional export industry of Serbia: agricultural products (raw materials), food and beverage, and chemical products. Comparative advantages are expressed only in several tourism

and hospitality sector, where it achieves little additional value. In parallel with the loss of comparative advantage in most industrial sectors declined specializes in intra-industry trade, which proved to be a significant factor for successful industrial restructuring in transition countries that joined the EU.

Presented with a point of view, one can draw a conclusion about the lack of implicit insisting on developing entrepreneurship in the transition process, which is especially true for the relations between the authorities and entrepreneurs as potential carriers of the inevitable development. It is irrelevant whether they are individual entrepreneurs, their professional (branch) associations, or the state level strategists. This conclusion can be extended in the claim that this was a very important cause of the recession in which the economy of Serbia is today.

Although entrepreneurship has become widely accepted as a vital force in the economies of developing countries, it is not surprising that there is still no absolute agreement on the core issues of entrepreneurial activity. Basically, we can say that entrepreneurship is a system of knowledge, skills and attitudes that go beyond economic framework, which means that this concept must be considered as a key competence for lifelong learning.

Serbian economy is still in school and has a secondary importance, and that knowledge is only partially transmitted and used. Investing in the development of knowledge Krugman called "technologically intensive good," and as such, it is treated as a fixed cost and a public character, and thus a legitimate state support (Krugman, 2010., p. 14-30). On the other hand, world trends regarding the militarization of science, industrialization and commercialization of education of some traditional public services (culture, health, education) are just a reflection of the relatively new policy of subordinating the production of goods producing profits. Namely, the capital, by definition, very well with the challenges of subversive forces in the new joint needs an effort to control them. Thus society tends to control people by giving them knowledge, on the other hand, the same company that does not provide adequate knowledge that would enable people to control and direct influence on the transformation of that society (Baum & all, 2010).

Today's industrialized and market-oriented world is far gone into a new phase of rapid scientific and technological development (Harfst, KL, 2010). The decline of Serbia in this context is the result of a pronounced institutional vacuum in the direction of scientific research, development of new technologies and the spread of technology transfer, leading to irrational duplication costs, technological disintegration of the economy, weakening the competitiveness of firms in the market, destructive competition and foreign companies apply unproductive new knowledge and technologies. The lag is noticeable in all areas of scientific and technological potential: technical culture and traditions of the population, the number and quality of research personnel, equipment research organizations, information system and involvement in international network of research institutions, research organizations available resources and the level of its

relationship with the economy, the ability of the economy to absorb new knowledge and innovation (Yamakawa & all, 2010).

Practical obstacles in the process of recognition of scientific research occurs at the beginning of the education process. Traditionally the defective system of education rejected the disastrous results in the production of high quality and creative staff. Insufficient investment in strategic and operational guidance of scientific research and development work with the negative performance of the education, they contributed to the almost total isolation of Serbia and the increasing gap in the level of development of science and technology in relation to the developed world (Kojok & all, 2012).

## ***ELEMENTS OF ENTREPRENEURSHIP DEVELOPMENT STRATEGY***

Entrepreneurship as one of the eight key competences of the European Council, has not yet been comprehensively developed and implemented in the educational system of the Republic of Serbia. In the long term, entrepreneurship should be included in the national strategy of economic development, including its involvement in all levels of education, to enable entrepreneurial learning after formal education.

From the strategic point of view, it is necessary to distinguish between broad and narrow concepts of entrepreneurship education. The broader concept of the function of developing entrepreneurial aptitude, skills and abilities to ensure the development of certain personality characteristics, such as: initiative, independence, responsibility, regarding the acquisition of basic economic concepts. Narrow concept implies training to run businesses and manage them (Simons, 2003).

The European Parliament and the European Council, in its recommendations for the development of entrepreneurship, according to the definition and principles of lifelong learning competencies. According to this view, entrepreneurship is the ability of an individual to transform ideas into action. It includes: creativity, innovation, risk-taking ability to reason, as well as the ability to plan, organize and manage projects in order to achieve certain goals, which implies the ability to exercise favorable development opportunities (European Commission, 2003).

In terms outlined, entrepreneurship development strategy should be based on the following principles:

- Sustainable development - entrepreneurial competencies whose performance is one of the main prerequisites of successful enterprise sustainability;
- Social sensitivity - entrepreneurship should take into account the needs of the community, as well as individuals;

- The competence of each individual and the high level of training, which contribute to increasing the overall entrepreneurial capacity, as new quality in every segment of society, regardless of a direct commercial benefit, which is the prerequisite for raising overall competitiveness;
- The spirit of competition - competition in the local, regional, national and international context, as the labor market and the economy as a whole, based on the achievement of higher goals and compared with others;
- Decisive action - a business idea can come to life only with the help of a decisive action, energetic swing and transforming creative ideas and innovation in business opportunity;
- The scientific basis - strengthening the complementary relationship between science and entrepreneurship in R & D projects incentive conditions for continued growth and development of the economy can be created;
- Inclusion of equality for all - the acquisition of entrepreneurial competencies, and their achievement in a variety of environments, it is necessary to enable all citizens to achieve common goods;
- European dimension - all documents encourage the EU, but also determine the entrepreneurial competence as one of the key competences for lifelong learning.

When it comes to the adoption of the Strategy for the development of entrepreneurship, what is most important is ensuring its sustainable and stable financial system at the state level, and at all other lower levels of government and professional associations of entrepreneurs. However, this should point to major problems in the area of budget crisis, which the Republic of Serbia is facing today, and it is certain that it would follow in the future from 2012 to 2015.

In our view, the real long term road construction of sound public finance is rapidly reviving economic activity, employment growth, export growth, a sharp selection of imports, selectively cutting budget spending, limiting government spending to gross domestic product in favor of the revival of productive investment. In the strategic function of development to include a different (stimulating) money and credit, fiscal, foreign policy and distribution policy. It's a totally different concept and strategy development and stabilization of the existing ones. On "patching" of the system and cover the growing deficit of the public sector leads, finally, to its destruction and the collapse of public finance.

Based on the above said, it can be concluded that the development of entrepreneurial skills is largely dependent on the social and political system of the country, which should be open to free discussion and participation. Changes in the education of managers and entrepreneurs should have two interrelated approaches, especially in the area of public finance. First, the globalization of the economy directs all states to the knowledge economy based on highly developed skills and a high level of technology. Second, the modern concept of the essence of the educational process is based on the postulate that the goal of learning is not just the accumulation of facts but learning how to learn and think. In this context, a critical

look at the existing systems of managers and entrepreneurs, and start innovating respecting their specific individual countries and regions.

## ***CONCLUSION***

Serbia's lag in the development of innovative business and entrepreneurship is the result of a pronounced institutional vacuum in the direction of scientific research, development of new technologies and the spread of technology transfer, leading to irrational duplication costs, technological disintegration of the economy, weakening the competitiveness of firms in the market, destructive competition of foreign companies unproductive and diffusion of new knowledge and technologies. The lag is noticeable in all areas of scientific and technological potential: technical culture and traditions of the population, the number and quality of research personnel, equipment research organizations, information system and involvement in international network of research institutions, research organizations available resources and the level of its relationship with the economy, the ability of the economy to absorb new knowledge and innovation

Development of entrepreneurial skills is largely dependent on the social and political system of the country, which should be open to free discussion and participation. Changes in the education of managers and entrepreneurs should have two interrelated approaches, especially in the area of public finance. First, the globalization of the economy directs all states to the knowledge economy based on highly developed skills and a high level of technology. Second, the modern concept of the essence of the educational process is based on the postulate that the goal of learning is not just the accumulation of facts but learning how to learn and think. In this context, a critical look at the existing systems of managers and entrepreneurs is given; they should start innovating respecting their specific individual countries and regions. As far as Serbia is concerned, it's very hard to balance the financial system in terms of the general indebtedness of the state, is a special challenge whose solution can significantly contribute to the development of entrepreneurship.

In Serbia, the intensive work on developing a new system of quality assurance and quality education, and that includes a variety of activities at the level of: (a) educational institutions in the district's own self-evaluation, and (b) external services as part of the external evaluation of professional, educational and managerial tasks prescribed educational institutions to provide effective education for all categories of professional development.

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# ***COMPARISON OF EDUCATIONAL BENEFITS IN SOCIO-ECONOMIC DEVELOPMENT OF SERBIA AND COUNTRIES IN TRANSITION***

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## ***Abstract:***

*This paper will be an attempt to highlight the issues of educational needs in context of socio-economic development of Serbia which is constantly expanding and growing and its corresponding trends which observe those needs and changes. We will also make an effort to point out the influence of education on the socio-economic development of transition countries, which is primarily determined by the general level of education. The best conclusion of scientific research and educational advantages is in the change in individuals, as well as the acquisition of practical skills, abilities and attribute of general applicability.*

***Keywords:*** *education, science, socio-economic development, management*

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## ***INTRODUCTION***

Research work, analysis and interpretation of the results of the research, as well as of other, similar research works, contributed to recognition, definition and understanding of the indisputable contribution of management in education to the development of science and education (educational programs' offer) and of their influence on the positive socio-economic changes and overall development of the Republic of Serbia.

Generally speaking, the entire world is changing, and science and education are the key factor of this change. New discoveries help discover new horizons and demands, new engagement in the implementation of change.

Successful socio-economic development is achieved through knowledge, and knowledge is acquired through education. Thus, numerous questions are opened that need to be answered in the process of development of education, and education thus acquires attributes of one of the main factors of social development.

“The education is a sound basis and safe foundation of each properly organized state and it is a measure of progress of individual societies”.

Economic development rates are to a significant extent defined by the available offer of educated work force.

Answers to many challenges, time in which we are living, inevitably unavoidably comprises of dealing with the basic questions, such as the following:

- Possible contribution that the education may provide to the socio-economic changes and its assistance in development strengthening;
- Potential contribution of education, and especially of teaching and research, to the organization of modern society and their greater involvement in actions aimed at poverty reduction, strengthening of the basic principles of civil society and development of other levels and forms of education;
- Answer that the education can provide to the changes in the area of work and civil culture that on its part should provide answers to the challenges (which implies strengthening of academic and professional qualifications, as well as of the civil and personal qualities).

The following can be concluded from the above questions: What is and what should be the role of education in the society today and in the society in the future?

## ***MANAGEMENT IN EDUCATION AND SOCIO-ECONOMIC DEVELOPMENT***

To dig into the ideas about education is to perceive origins of problems that are nowadays important issues in the development of education and its contribution to the socio-economic development.

We may despair, introduce savings measures by closing down smaller schools, think about changing the network of schools and continue to loose quality staff in education...

This would imply opening door for defeat by surrendering to despair, reducing competencies and scientific and educational potentials and their contribution to socio-economic development through reductions of expenditures, neglecting aspects in which we have traditionally proved to the best, surrendering quality and industrious experts to other countries...

Wouldn't it be better to increase investments in human resources and implementation of a new doctrine and management application in education? The aim for the educational institutions is to position themselves as responsible and organized institutions that follow modern trends and satisfy the needs of their users in a quality manner (the needs of pupils, students, and of the society in general, too), by creating the culture of learning and by enhancing the values of human resources' capital as an expression of a wish for the future.

It is necessary to leave the door wide open for science and education to bring innovations, new curricula and initiatives with clearly controlled criteria for quality through implementation of management in education. In addition to this, national interest in respect of education must be expressed and defined, along with the regional, local and other interests of the society, and awareness must be built about the interactive liaisons between the socio-economic development and education. It is due to the future development of Serbia that the education must be given a chance in its search for a new identity, which primarily pertains to the change of the fully developed parasitical and subordinate mentality of education (its dependence on politics, economics, etc.), and the change of its mentality of *"second class traveler in the train for the future"*. The historic contribution of education in creation of national structure that was necessary for the functioning of Serbian economy and society, national culture and elite and as a channel of social mobility must not be forgotten at that. Regardless of the level of destruction that the educational system has suffered so far, it is still of far better quality than everything else that can be found in Serbia today.

Education is the "central nervous system" of each society – educational, cultural chain that vibrates incessantly. In this chain, an educated and skilful manager should make an important link, in addition to the educators, teachers, professors and others.

Managerial skills can be generated only through a combination of theory and practice. It is generally known that a manager is required to possess capacity for innovativeness and management in planning, organization, coordination and control of task implementation of educational institutions.

Positions and opinions in respect of the characteristics that essentially characterize a manager differ. Regardless of whether it is about approaches according to which the experience acquired lies at the core of management, or about the skills acquired, or about a scientifically based discipline, an additional qualification is always present in the background of all of these positions: a special spirit lies at the core of management in education, a specific philosophy that requires a certain state of mind, a system of values, i.e. a specific standpoint in relation to the key questions about the behaviour in the course of operations and in relation to the operations of educational institutions.

The basic question is: how to keep idiosyncrasy and peculiar characteristics of one's personality and at the same time fit in the existing environment and changed circumstances?

Since management is never an entirely finished process, this very fact presents a special challenge for managers who should learn more, grow and develop their skills to achieve goals that are set quite high. Basic principles in business are especially prominent, such as the flexibility, accessibility in communication, energy investment, need for understanding and establishing communication lines, team work development, creation of good and positive atmosphere, well thought-out public presentation.

In order to achieve a goal in this course of ideas and in order to overcome potential obstructions and barriers, the so-called 'bridges' are set up (freedom of thought, expression and communication). In management of education, information conveyance is of utmost importance. Information is a notice, announcement, a piece of data, but it additionally involves the organization, choice and creation of a certain job.

Usefulness of management in education and achievement of educational development goals are reflected in abandoning of principles of traditional static-functional principle of business activities of educational institutions and their focus on changeable and flexible organization of education that assumes different shapes with the changing demands of the socio-economic development. Development that strides towards the present, which implies harmonization of economic and overall social growth and development on one hand, and the quality of life, i.e. of the acceptable standard of living, on the other. Development that does not jeopardize the potentials of the future generations for satisfying their needs, i.e. the survival of the future generations.

Development implies innovation as a process in which new technologies are to be generated, a new way to do business, etc., and from the aspect of sociology, it implies that the great social and structural changes will additionally be created in the process of institutional transformation as well.

Successful development requires adequate knowledge, innovativeness, accountability, initiative and innovation, and a great deal of work. In addition to this, the new market reality demands flexibility and fast changes in education in compliance with the developmental needs.

Education level of the general population is an indispensable indicator of the achieved level of social development in each society. Higher level of education implies a higher level of ability to perform complex tasks that involve responsibility in a society and it also exert influence on all the areas of social life – economy, politics, culture, health care culture and social security. Education provides for permanent development of values.

Economic crisis intensifies interest for the place and role of science and education that are a treasury of valuable experiences adaptable to the present stage of development in Serbia, through intensive research in different area of activities, generating of ideas, as well as through the development of methods and techniques for problem solving in practice, which under the present conditions implies speed, optimum costs and innovativeness.

The necessary changes are primarily related to the changes in people's attitudes (in their motivation levels, knowledge, criteria, individual behaviour and group behaviour, capabilities and other personal characteristics).

The basic criterion for progress must be founded in the accumulation of acquired knowledge and education. Ability-based selection makes a social system become more rational and economical, since it does not allow the less capable ones to waste our time. Goals in education must be clearly specified. Once the goals and tasks are specified, adequate methods must be found, too, together with forms, means and organization of education. This can be achieved through constant professional improvement, following and selection of new scientific achievements and knowledge and necessary changes, through implementation of management in education.

Modernization of society and state and focus on the modern economic and technological development imply innovations in global goals of science and education in Serbia.

In order to set the development of Serbian society in motion towards a learned society, in addition to the formal education it is necessary to also develop readiness and capacity for continuous professional improvement and lifetime learning as a whole. In addition to a well structured formal system of education, it is also necessary to have an adequate system of institutions, organizational forms and programs that are not included in the formal system of education, through which the capacity for continuous, lifetime learning will be realized and nurtured, based on the premise that:

- The manifestation of lifetime learning is an integral part of holistic education;
- A corrective of the regular educational system;

- An innovative mechanism of the educational system;
- A strong factor of economic development;
- It increases professional mobility.

This is based on facts that the mental abilities must be maintained, enriched and strengthened through self-motivated learning and self-education.

Revealing ignorance is only a means for spreading knowledge. People learn about the world by using their common sense, and their common sense motivates people to reach the treasuries of knowledge that will enrich their personalities and minds by means of correcting their own minds and education.

Modern developmental tendencies in the countries with market economy have shown that science and education are at the very top of priorities of the global national strategies and policies of socio-economic and technological development and progress. It is about such social organizations that are based on knowledge in which science and education have the status of basic instruments of the entire socio-economic development, finding solutions to the basic social problems and production of social, economic and technological changes.

The best abstract of research into the scientific and educational benefits for socio-economic development lies in the change in individuals (characteristics and forms of behaviour of individuals) and in the changes in society. These changes can produce far-reaching consequences for economy and society, and even for the course of history. By summarizing the main findings about the influence of education to the socio-economic development and to the society as a whole, it has been concluded that the education:

- Significantly improves the knowledge levels, intellectual tendencies, etc.;
- Helps people in finding their own identities and in their individual choice of lifestyle;
- To a great extent, education increases people's practical competencies, flexibility and tolerance in their capacities of citizens, workers, family members and consumers, and influences their choice of leisure-time activities, their health and their general abilities for coping with the problems in life.

The main influences that the education exerts have practical abilities, skills and generally applicable characteristics, such as: the verbal skills, essential knowledge, rational approach to problems, intellectual tolerance, future orientation, adaptability, self-esteem, and so on.

Changes in individuals that came as the result of the influence of science and education are transferred to their children and to future generations.

It is indisputable that the educated people exert influence on their social environments (on the predominant interests, values, attitudes, behaviour, etc.).

These effects can be manifested in different areas, including creativity, family planning, care about children, quality of schools, appreciation for arts, culture and

learning, health care services, political participation, understanding of social issues, acceptance of social changes, as well as the sense of shared culture and social solidarity.

Science and education additionally serve to preserve cultural heritage and they enhance civilization.

Despite the fact that a convincing argument about the role and contribution of science and education to the socio-economic development has been proposed in the economic texts, the reason why education makes people become more productive remains relative, as well as the alleged effect of “spilling over” of education that can indirectly contribute to development.

It is obvious that the development process is linked not only to the growing levels of education, but also that the link between education, political and economic development is dubious under extreme conditions (political instability, corruption, violence, etc.).

In essence, relations among science, education, population growth and economic development are complex, and especially when directed towards the socio-psychological research work through transformation of values and attitudes that have direct implications on development.

Science and education in socio-economic development contribute to the capacity to transform individual attitudes and values from the “traditional” ones towards the “contemporary” ones, and thus by strengthening the rate of structural modernism in a society, they increase the rates of socio-economic development.

Another contribution highlights the role of literacy and improvement of communication in development. Many researchers have claimed that the written tradition is of essential importance for the origins of “formal rational thinking” in every society. Others point out that if development depends on efficient dissemination of new information, the role of science and education in complex social systems in particular lies in their influence on costs of such information dissemination processes. This is above all manifested in facilitation of communication processes that are of vital importance for socio-economic development.

Although the research in social sciences has provided a series of convincing hypothesis pertaining to the “intervening variables” that serve to explain the relationship between science, education and socio-economic development, direct political implications of these researches in Serbia are in no way obvious (preliminary results of research works are used selectively to justify the educational policy for quite different and often political reasons).

However, broader terms of institutional transformation that are linked to the development imply that both the scientific and educational institutions (both the formal and informal ones) have to undergo adequate transformations in their functions. The balance is tipped towards the use of educational institutions that act as agents in the selection and division of individuals and groups that play different

economic roles and take up positions in social structure. Thus, education becomes an independent variable in the process of social changes and as the structural differentiations grow, it can facilitate or even obstruct the development process. Concrete problem of measuring the influence of improvement of educational input on the economic output must be looked at in a broader historical, socio-economic and sociological perspective that attempts to explore the problem of relationship between science, education and development in the broadest sense.

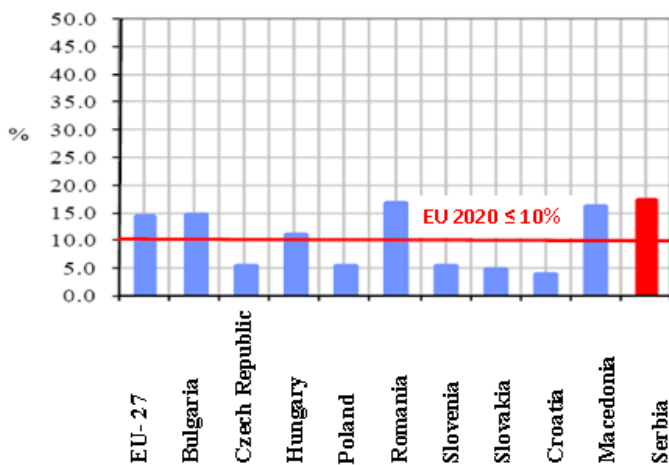
Basically, the interactive relationship between the economic and educational dimensions is being highlighted, since the opinion that the educational basis is the prerequisite for sustainable development is broadly accepted throughout the world (the developed countries suggest the threshold of 30 to 40 per cents).

In this sense, an attempt was made through appropriate educational and socio-economic indicators show the dependence of the interactive relationship between education and socio-economic development of countries in transition.

Investments in education, research, development and innovation in the new European strategy for Europe 2020. Investment has character and is the first priority. Special emphasis on establishing a system of education that meets the needs and demands of a competitive economy, the establishment of strong links between employers, institutions responsible for education, scientific institutions in their respective fields and the labor market. These links need to be institutionalized at the national, and regional and local level. They are necessary to ensure that education meets the needs of employers for relevant professional competencies that match the level of technology and industry.

According to the Labour Force Survey, countries in transition early indicator of completed education and training is part of the population aged 18-24 who have completed lower education and training in the total population aged 18-24. Under the less educated to the International Classification of Education (ISCED 1997 - 0, 1, 2 or 3c short, second) means the uncompleted primary, primary and incomplete secondary education. The survey covered countries, the data for 2010. year ranked from the lowest 3.9% in Croatia to the highest 16.6% in Romania and Serbia, 17.3% (15 - 24 years). The average share of early completion of education and training is 14.4%. Lower rates of employment are: Croatia 3.9%, Slovakia 4.9%, Slovenia and Poland 5.3%, Czech 5.4% and Hungary 11.2%. Above average share: Bulgarian 14.7%, 16.2% of Macedonia, Romania and Serbia 16.6% from 17.3%.



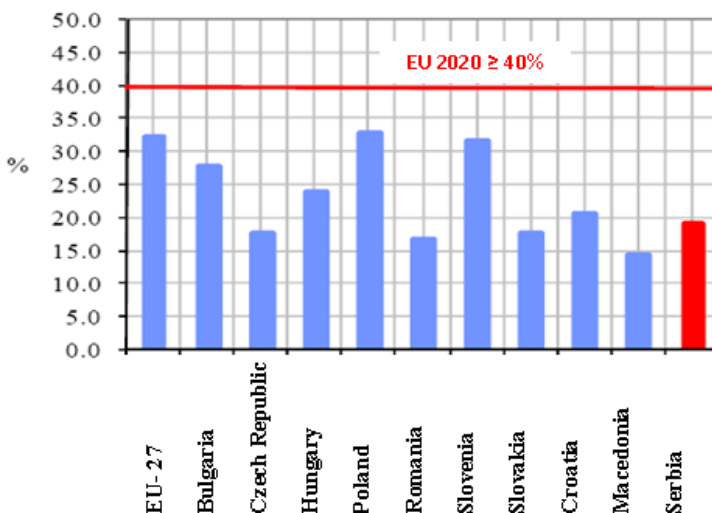
**Graph 1:** The share of population with lower education (18-24 years)

Source:

<sup>1</sup><http://mfp.gov.rs/UserFiles/File/dokumenti/IZVESTAJ%20O%20RAZVOJU%20SRBIJE%202010.pdf>

Indicator of higher education is part of the population aged 30-34 with completed higher education in the total population of countries in transition ages 30-34. Under the Higher Education to the International Classification of Education (ISCED 1997 to 5.6) means more (the first high-level) and higher education.

Countries covered by the survey, ranked from the lowest 14.3% in Macedonia to 32.8% the highest in Poland.

**Graph 2:** The share of population with higher education (30-34.godine)

Source:

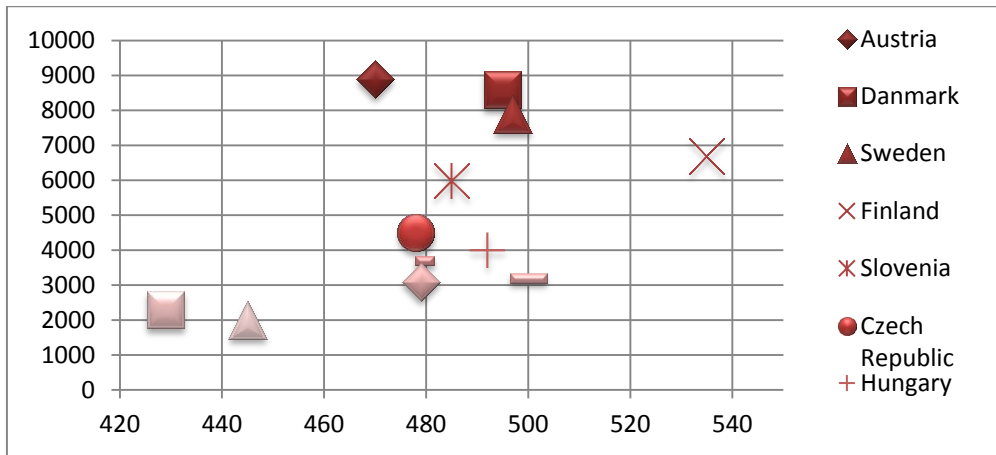
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**Table 1:** Educational differences in transition countries

State ranking, HDI	Norway 1	Czech Republic 28	Slovenia 29	Hungary 36	Romania 50	Croatia 51	Bulgaria 58	Serbia 60
The average number of years of education 25+	12,6	12,3	9,0	11,7	10,6	9,0	9,9	9,5
Expected number of years of schooling	17,3	15,2	16,7	15,3	14,8	13,8	13,7	13,5

Source: <http://mfp.gov.rs/>

Research and comparisons of functional literacy (how many young “equipped” for life in modern society), quality and equity of education point out the factors associated with educational attainment.

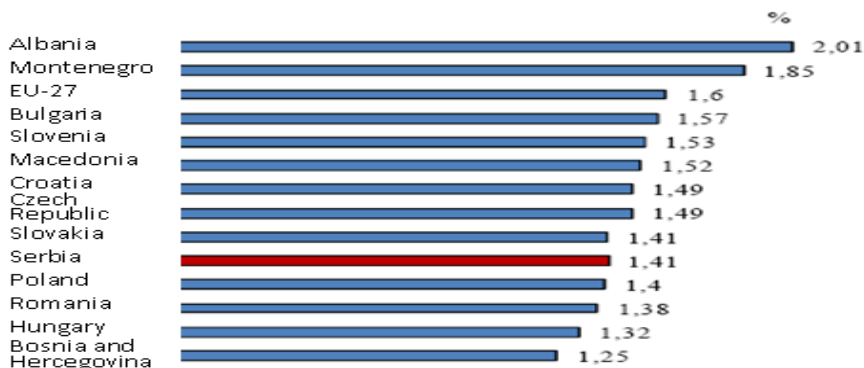
**Graph 3:** The effectiveness of education-PISA tests

Source:

<http://mfp.gov.rs/UserFiles/File/dokumenti/IZVESTAJ%20O%20RAZVOJU%20SRBIJE%202010.pdf>

In the previous part of the article we talked about the impact of education on fertility countries in transition. The birth rate as a natural component of the positive direct impact on the revitalization in the population and its age structure. Accordingly, long-term low birth rate reflects the age structure, so in terms of growth and reproduction do need a replacement, depopulation and aging of the population for some time continue.

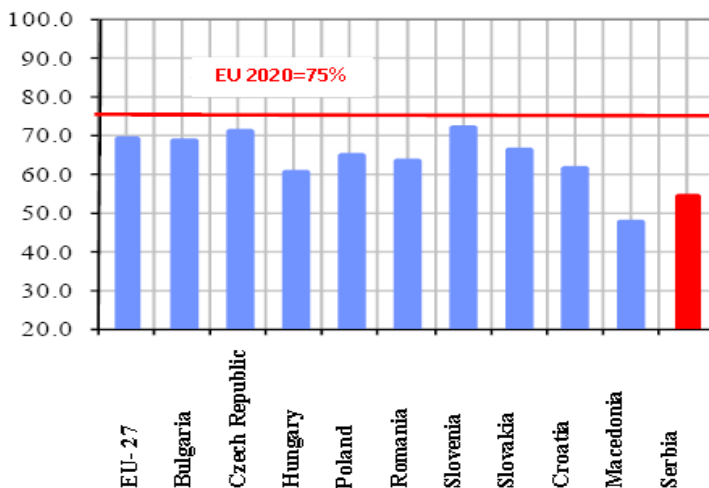
**Graph 4: Total fertility rate - fertility countries in transition**



Source: <http://mfp.gov.rs>

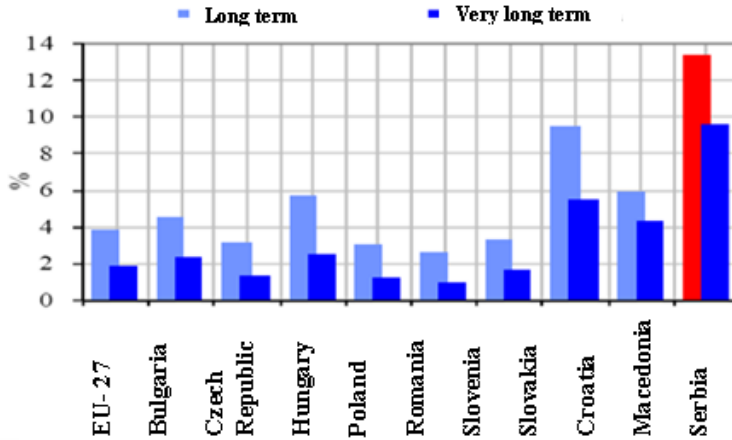
Next, we noted a very strong influence of education on the population of countries in transition. Participation rate (activity) is the percentage of active population in total population aged 15 and over. Overall participation rate, expressed as a percentage of 15-64 years of active (employed and unemployed) in the total working age population aged 15-64 years, the survey covered countries, the data for 2010. year ranged from the lowest 59.0% in Serbia and the highest 71.4% in Slovenia. There is a low participation rate of young (15-24 years) in the Serbia of 28.2%, compared to EU-27 (44.3%) and neighboring countries, and on the other side of the participation rates of older (55-64 years) of 37.3% is below the EU 27 - (49.9%) exceeds the rate of participation of the same populations in other countries in transition.

**Graph 5: The employment rate for countries in transition (20 - 64)**



Source:

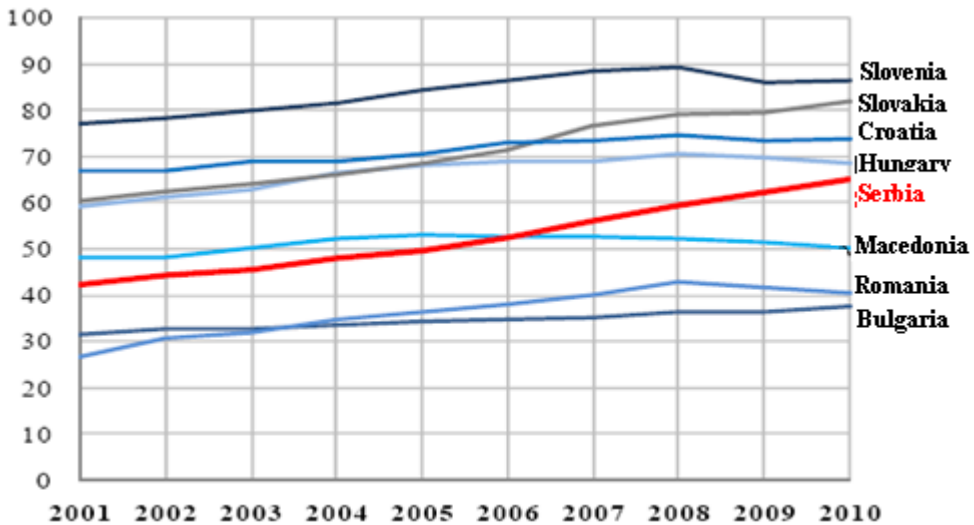
<http://mfp.gov.rs/UserFiles/File/dokumenti/IZVESTAJ%20O%20RAZVOJU%20SRBIJE%202010.pdf>

**Graph 6: Long-term unemployment rate 2010th**

Source:

<http://mfp.gov.rs/UserFiles/File/dokumenti/IZVESTAJ%20O%20RAZVOJU%20SRBIJE%202010.pdf>

Labour productivity is a key factor in the expression of educational benefits.

**Graph 7: Labor productivity in PPP (EU27 = 100)**

Source: <http://mfp.gov.rs>

Educational level of employees, their work productivity and other factors reflect the average level of wages in transition countries.

**Table 2: Salaries in EUR**

	2008	2009	2010
Bulgaria	226	237	259
Romania	373	349	334
Hungary	447	455	486
Croatia	738	737	720
Czech Republic	944	960	953
Poland	838	717	812
Slovakia	697	730	744
Slovenia	900	930	967
Bosnia and Herzegovina	408	410	412
Macedonia	260	325	336
Albania	--	294	314
Serbia	400	338	331

Source: <http://mfp.gov.rs>

The foregoing is the impact on GDP growth in transition countries.

**Table 3: Real GDP growth in transition countries**

	Types of connections for Internet access (multiple answers, %)												
	Using the Internet			Broadband		Modems and ISDN		Other links (cable)		DSL		Wireless mobile phone	
	Poj	Dom*	Pred**	Dom	Pred	Dom	Pred	Dom	Pred	Dom	Pred	Dom	Pred
EU	71	70	98	88	90	11	-	40	20	58	81	9	20
Bulgaria	46	33	95	79	71	16	-	61	32	19	47	1	10
Czech Republic	69	61	99	89	90	8	-	65	55	26	57	1	19
Hungary	65	60	98	89	87	9	-	46	35	43	68	6	24
Poland	62	63	99	90	69	10	-	55	20	40	59	10	22
Romania	40	42	96	54	62	48	-	50	34	5	30	7	10
Slovenia	70	68	99	91	88	9	-	59	25	49	73	31	32
Slovakia	79	67	100	73	73	23	-	52	27	26	54	17	36
Croatia	57	56	98	87	80	7	-	22	20	71	73	4	34
Macedonia	-	42	-	81	-	29	-	33	-	50	-	2	-
Serbia	44	39	97	28	-	18	14	25	17	47	74	20	12

\* percentage of households that have Internet access from home,  
\*\* percentage of enterprises with internet access

Source: <http://mfp.gov.rs>

In today's transitional business productivity and allocative ability are determined by using Hg modern forms of knowledge, information and communication technologies. Use of the Internet and other modern forms of information and communication technologies have radically changed the way people live and work and are the basis of development of the knowledge society and sustainable development.

**Table 4:** Using the Internet and connection types to access the Internet in 2010

Country	The share of private sector in GDP in mid 2010, the EBRD estimates%	Mean - total	Company			Market and trade			Financial institutions		Infrastr ucture
			Large private companies	Small private companies	Governance and enterprise restructuring	Price liberalization	Trade and foreign sector	Competition Policy	Banking sector reform and liberalization of interest rates	Securities markets and nonbank financial institutions	Overall infrastructure reform
Albania	75	3,1	3,7	4	2,3	4,3	4,3	2	3	1,7	2,3
Bosnia and Herzegovina	60	2,8	3	3	2	4	4	2	3	1,7	2,7↑
Bulgaria	75	3,6	4	4	2,7	4,3	4,3	3	3,7	3	3
Croatia	70	3,5	3,3	4,3	3	4,3	4,3	3	4	3	3
Macedonia	70	3,3	3,3	4	2,7	4,3	4,3	2,3	3	2,7	2,7
Hungary	80	3,9	4	4,3	3,7	4	4,3	3,3	3,7↓	4	3,7
Montenegro	65	2,9	3,3↑	3,7	2	4,3	4	2	3	1,7	2,3
Poland	75	3,8	3,7↑	4,3	3,7	4,3	4,3	3,3	3,7	4↑	3,3
Romania	70	3,5	3,7	3,7	2,7	4,3	4,3	3↑	3,3	3	3,3
Slovakia	80	3,7	4	4,3	3,7	4,3	4,3	3,3	3,7	2,7↓	3,3
Slovenia	70	3,4	3	4,3	3	4	4,3	2,7	3,3	3	3
<b>Serbia</b>	<b>60</b>	<b>2,9</b>	<b>2,7</b>	<b>3,7</b>	<b>2,3</b>	<b>4</b>	<b>4</b>	<b>2,3↑</b>	<b>3</b>	<b>2</b>	<b>2,3</b>
Serbia's ranking		21-22	24-25	22-25	13-18	14-24	19-23	13-19	11-19	18-22	16-21

Source: <http://mfp.gov.rs>

At the end of the display indicators of socio-economic development of countries in transition that significantly affect the level of education and we will point out the progress indicators of the process of transition countries.

**Table 5: The value of EBRD transition indicators in transition countries, 2009-2010**

Region - country	GDP, interannual growth rate in%					
	The new forecast				The deviation in relation to the EBRD forecast of October 2010.	
	2008	2009	2010	2011	2010	2011
Croatia	2,4	-5,8	-1,3	2,0	0,2	0,1
Hungary	0,8	-6,7	1,3	2,0	0,8	0,3
Poland	5,1	1,7	3,6	3,9	0,3	0,3
Slovakia	5,8	-4,8	4,0	3,7	0,0	0,3
Slovenia	3,7	-8,1	1,0	1,7	-0,1	-0,4
Albania	7,8	3,3	3,8	2,6	0,7	0,4
Bosnia and Herzegovina	6,0	-2,8	0,8	2,2	0,0	0,0
Bulgaria	6,2	-4,9	0,4	2,6	0,0	0,3
Macedonia	4,8	-0,9	0,8	3,2	0,0	0,9
Montenegro	6,9	-5,7	0,2	3,1	0,8	0,5
Romania	7,3	-7,1	-1,9	1,1	0,2	0,2
Serbia	5,5	-3,1	2,0	3,0	0,4	0,1

Source: <http://mfp.gov.rs>

Note: The maximum possible score for progress in transition is 4.33, a minimum first. The value of 1 represents little or no change from a rigid centrally planned economy, while 4.3 represents the standards of market economies. Shaded cells and indicators for 0.33, two scroll arrows to 0.66.

Science and education are the basis of socio-economic development, and vice versa, socio-economic development is the basis and function of education, since the development of society is above all conditioned by the level of development of science and technology that are before all the result of education. Similarly, we have ventured in “an unforgivable age”. Rules are constantly changing, and the economic and social environment is changing with them. Changes in reality are faster than the spontaneous, reflex thought.

The main problem lies in the question of whether there is a politically articulated, convincing alternative to something better compared to the existing state and whether there are socio-cultural and political subjects that are sufficiently strong to achieve it. This is even more so since all the paradoxes of our society result from the antagonism of the real and promised socio-economic development.

The conflict and confusion among different goals of changes and means of their realization is very prominent and at the same time burdened with excess expectations for reduction of inequalities under the present conditions of life and life chances of people.

There can be no socio-economic development or way out of the crisis without a road to economic freedoms (creation of new values, road to entrepreneurship, business, etc.) where science and education play a significant role.

Reforms are concessions to spontaneity of organic development, natural tendencies in economy, and in a broader sense – freedom of creation.

Huge costs of inaction over a long term have come as a result of many trends that are nowadays unsustainable, as well as of wrong choices and erroneous solutions in relation to production, technology, infrastructure, agriculture, use of natural resources of Serbia, etc.

Political elite and missionary intelligence that are used to approve loans under favourable conditions, donations, sponsorships, etc., and they use the international economic crisis for their excuses.

Commonsense and rationality of comparative experiences show that the international crisis cannot be used as an excuse for new lags or failures in a single area, and thus in education either.

Aimlessness, lack of one's own road of socio-economic development, inability to bridge the transition and socio-economic crisis have all been transformed into “the only way”, regardless of whether the road to the EU is called 'reformist' or somewhat else.

On that road, science and education could become a bridge between the “outer world” and the “inner world”, between the world “that is somewhere over there” and the world “that is here exactly”. In science and education, questions are as important as the answers themselves. It is the place where generalizations must give way to concrete actions.

The process of change in the area of science and education has, so far, however, been impoverished in its content, and the quality of changes has been made completely uncertain, because the changes have been treated as the ultimate goal, and not as a road and means to arrive at a socially formulated aim. Social and economic environment has thus not been achieved to be a fertile soil for the realization of sound and reasonable reform in science and education that is adjusted to suit the needs of the socio-economic development of Serbia. The reason for this lies in the fact that the process of reforms in education has been embarked on with little knowledge and with even less practical experience, with purely theoretical assumptions of the great “philosophers”. Their complete blending in the social system has brought in question their other values that enhance and maintain society and that are a factor of its progress.

“Science and education should not sink into the social life, but they should encourage creativity and reveal the reality of the social life.”

With the weakened state, new patterns of consciousness have been imposed, coupled with the appearance of know-it-all and omnipotent individuals and non-governmental organizations and their famous veteran activists and ideologists of civil society, attested “Bologna missionaries” and persons that are allegedly worried about or concerned with the change in the prevailing mindset of the Serbian people.



Non-governmental organizations with segmented and strictly functional organization bring in the spirit of special interests and fragmentary knowledge and skills in Serbian education.

New post-modernist forms: trainings, educations, consultations, courses, workshops and the similar that are quite often organized outside the Serbian borders, and the question of the real purpose of such types of education remain, just as whether it serves to undermine the results, tradition and standing of the educational institutions.

The following question arises: What does our society do today to fight the grey economy, business logic and corruption in education? Almost nothing?

The policy of equal chances has been abandoned, and changes are being limited to the internal approach (of the Universities, faculties, schools, teachers, curricula and textbooks). The biggest confusion lies in the relation between the national and the global.

In the practice so far, rationality of goals has been sacrificed to the rationality of means.

Discussion about education is movement on a broader social level the end goal of which is an invitation to a new understanding of the mission, role and function of education.

## ***CONCLUSION***

General conclusion is as follows: it is necessary to create a vital and creative society, which is versatile and harmoniously and integrally developed, ready and qualified to face very rapid and constant developmental changes.

Education is expected to produce workforce that will not simply be the people looking for a job, but people who are capable of becoming successful entrepreneurs and jobs' creators. In this process, elimination of shortcomings in management is of utmost importance.

Changes require activities within the educational process, that is, in everything that the educational system can make more efficient and effective, while at the same time liberating it from the unnecessary waste of energy.

It is indisputable that the socio-economic development in Serbia is a precondition for reforms of education, but it can hardly be considered a political priority as well, and also that the role of education as an instrument of socio-economic development will be highly changeable over time.

“Big problems that we face cannot be resolved on the level on which we have created them”. (Albert Einstein)

In order to accommodate demands that characterize modern business activities of educational institutions and their contribution to the socio-economic development, the active directing concept – the management concept - is being used, which provides for the focus on goals, flexibility and control over achievement of educational results.

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# **CONTRIBUTION OF ENTREPRENEURSHIP EDUCATION COMPETITIVENESS OF THE ECONOMY AS A MEASURE OF ITS SUCCESS**

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## **Abstract**

*The subject of this paper is to assess the contribution of education improving economic competitiveness. Education can be defined in different ways. In general it is as a process in which an individual adopts cumulative experience and values of the society in which he is educated. The starting premise is that the overall development goal of human society is to achieve the ideals of a market economy, parliamentary democracy and the rule of law. Increasing the competitiveness of the economy leads to the realization of these ideals. The methodology of the World Economic Forum in the most comprehensive way deals with this phenomenon. Higher education and training, as the Fifth pillar of competitiveness is particularly important for countries that have overcome the initial stage of economic development. This entire concept of competitiveness is based on a market economy and entrepreneurship. Education in the analysis of the Fifth Pillar Global Competitiveness is considered from a quantitative and qualitative aspects. Entrepreneurial education is here assessed through the quality of the education system and the quality of management and business education. This paper analyzes data from the report by the World Economic Forum's 2011-2012 Global Competitiveness in the example of 10 representative countries of middle and high level of development where the correlation analysis confirmed the theoretical suppositions about the importance of entrepreneurship education for economic competitiveness.*

**Keywords:** *Competitiveness, education, the World Economic Forum, the Fifth pillar of competitiveness, entrepreneurship education, quality management and business education.*

## ***INTRODUCTION***

The subject of this paper is to measure the contribution of education to improvement of competitiveness of the economy because it is not processed as it deserves in the economic literature. Increasing competitiveness is still a key issue for successful incorporation of any country in the world economy. The question is what kind of education and to what extent it contributes to increase in competitiveness. You'll also see which aspect of education is the most effective in this regard.

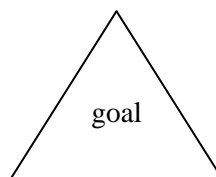
Back in the late seventies in most developed countries began spreading wave of globalization which is transforming our present civilization. Base of these changes was initiated by the development of computer and communications technology, biotechnology and genetic engineering, as well as the rapid development of a new set of multidisciplinary research. Evaluative structure of the world economy has changed in the direction of growth of high-tech industrial products and services, and declining share of primary products. National borders have become close to leading corporations. There has been a development of regional supranational structures. Strict border between national economies faded away.

We wonder how education can contribute to the competitiveness of the economy as the most important factor for successful integration in these flows. Education can be defined in different ways, in the most general terms as a process of change by adopting various content. Lower level education (elementary education) has pronounced educational component. The most modern institution in this field is the school, which is why education is often identified with the school system performance which is not entirely true. Beside the fact that globalization with the help of development of communications included education, yet education is still in most cases very dependent on the state in which it is done. The national school system is still the most influential factor in education.

In the broadest sense, it is the process in which an individual adopts cumulative experience and values of the society in which it is formed. With the development of this civilization this process becomes broader and more organized by strengthening the role of the state in the school system. Today, education is becoming one of the key development factor of the economy and society as a whole. If we adopt a general developmental goals in line with the values of today's leading countries, it can be represented as the following graphical images.

*Figure 1: The objectives of social development*

parliamentary democracy



## market economy                      legal country

These are schematics of directions in society development through ideas for the improvement of the political, legal and economic systems. We see three main directions and they are all equally important and interrelated in the development schedule. However, they are all inextricably linked to the coverage, the level and quality of education.

As far as the legal system tends to construct of what in public already became known as the "rule of law". It is another name for the government of law, for such conditions of life and work of organizations and individuals that will be characterized primarily by legal certainty. Every social subject occupies a position in the company in accordance with the legal system, and it may change again only in accordance with it. Conditions for that are transparent, stable and applicable regulations, a strict division between the legislative, executive and judicial powers and strong institutions.

Regarding the political system, it is strived for the establishment of parliamentary democracy. It is a system of political life and actions that is primarily characterized by freedom within the limits of the constitution and the law. Political and other organizations participating in regular and extraordinary parliamentary elections are free to establish at all levels of government, and participate in legal parliamentary and extra-parliamentary struggle.

The economic system is an essential part of this problem, and it is in reality constantly intertwined with the interaction of the previous two. Usually refers to modern capitalist economic system which is seen in the leading economies in the world, dominated by private capital. More often it is called the market and/or entrepreneurial economy.

In this economic system for the sake of its efficiency profit is promoted as the primary goal of all business enterprises. The main characteristic of the capitalist economic system, which is in terms of economic efficiency on the historical stage clearly superior, is the profit as the first order of business, which remains to the owner of invested capital available upon settlement of tax liabilities and deductions of all costs, including labor costs.

Another essential component of the economic system is to establish an integrated market as a unique business environment for all enterprises. What is the primary and often the only relation and communication between business entities is to enter into free relations with the aim of maximizing their benefits. The result for entrepreneurs is uncertain and is manifested as a positive profit generation and increasing equity, or as a negative realization of loss and reduction of equity.

Regardless of the uneven development of the world, it is essential to follow the developing trends of leading economies, particularly their structural changes. Thus we see that in developed countries, the service sector took absolute priority in the creation of GDP (Gross Domestic Product) and this share is increasing trend for several decades. Activity in this sector of education is getting more important. It has a maximum motivating effect on the development of other sectors of the economy and society as a whole. If it is of the entrepreneurial orientation, it

encourages individuals and businesses to market orientation in business as an invaluable contribution to economic growth and development.

## ***COMPETITIVENESS IN THE MODERN WORLD ECONOMY***

In the world of science competitiveness is a category of recent date. It wasn't defined in its modern form until the end of the last century. In the last decade of the twentieth century there was strong momentum of science and development of global markets. Competitiveness was accentuated as never before on micro, and as a newer phenomenon, as well as on the macro level.

Although the competitiveness of individual businesses was studied from the emergence of modern capitalism, the current conditions fostered competitiveness of the national economy as a very important aspect of the study. Beside the fact that even today as in the past century the battle in the competitive global market is placed between large companies and not between countries, the competitiveness of the national economy has its own specifics that are heavily influenced by the operations of the companies themselves, direct investment by geographic location and constitutes fertile or less fertile ground for their development. So now the creators of national economic policies, especially foreign trade policy, must keep in mind that if they want the longer term on sound grounds to develop its economy, cannot do that by any protectionist measures (which usually causes a counter-measure to their partners) but on the improvement of the competitiveness of their economies. They should delete economic boundaries and allow economic growth by attracting foreign investment in their country, enabling local companies for global competition.

Therefore, for the successful integration of national economies into the world, we need a high level of its competitiveness. In other words, the competitiveness of an economy is a right measure of the success of its fitting, that is positioned within the global economy. It is a basic requirement for economic growth and development. Namely, any economy in general cannot count on long-term sustainable growth if there is no growing export besides long-term export, which has urgent importance on reducing trade deficit and balance of payments as a whole and improving debt position of the country. In addition, the increased competition has improved the investment climate as the main precondition of economic growth and development. Without it in the end there is no new employment, personal and social growth standard. In this case, the level of satisfaction of all human needs inevitably leads to degradation and lowers the individual, the nation and the state. It is important to note that the improvement of the competitiveness of a country is in no way conditioned or limited by movement of the competitiveness of other economies.

"Report on Global Competitiveness," World Economic Forum and "Doing business" World Bank cover a range of indicators, elaborated methodology and provide the most comprehensive picture of the competitiveness of almost all of

National economy, and as such it is recommended for the consideration by all investors in the world, as well as officials who deal with improving competitiveness of their national economies.

Both reports together provide a complete picture of an economy's competitiveness. The Report of World Economic Forum is a more theoretically founded and gives a broad picture of the macroeconomic aspects of competitiveness and it is very suitable for the laborers engaged in improvement of the economic system, and for the creation of sector policies in each country. On the other hand, the World Bank report gives specific requirements for business entrepreneurs which are valuable when deciding where to locate investment. Both statements taken together complete the picture of each national economy in terms of its ability to increase exports and attract foreign capital. The methodology of the World Economic Forum in the first place adjusts assess to conditions for the growth of exports, while the World Bank methodology primarily provides conditions for attracting FDI (Foreign Direct Investment).

The Global Competitiveness Report of the World Economic Forum with its comprehensiveness, both in number of countries, and by the number of indicators provides a complete analysis of the competitiveness of an economy, both in absolute terms, according to the value of indicators, and as well as relative, enabling comparison with other countries, and to both in the GCI (Global Competitiveness Index), and the individual elements of the competitiveness, which enables detailed analysis and conclusions that should be the basis for taking remedial measures. In addition, by following values of these parameters from year to year, one can, both in general and by specific indicators to monitor the development trend of competitiveness of a country in absolute and relative terms. In this way, one can make reliable conclusions about the shape and prospects of the economy of a country and to identify the main shortcomings of the system, and development and economic policies that should be corrected.

The basis for making the report are standardized questionnaires which each year includes a growing number of representative companies in each national economy. Company executives typically assess economic conditions score of 1 (worst) to 7 (best).

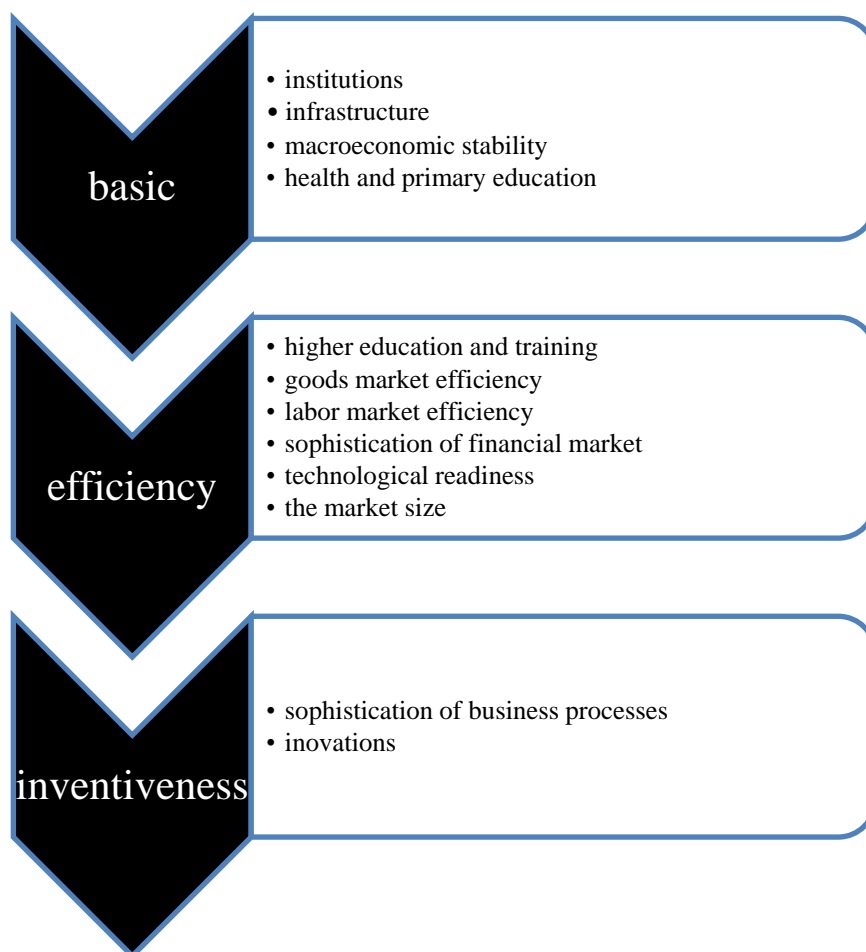
This approach is very important because when calculating GCI survey data participate for approximately 60%. In this way we achieve a high degree of objectivity and prevents to a great extent influencing of political factors that would certainly have an interest in the status display of competitiveness "own" the economy better than it actually is in practice. Also, this brings us back to the argument above that the competitiveness of an economy is exactly what it provides to enterprises. The meaning of growth competitiveness of the economy is to create the conditions for the growth of micro-economic competitiveness of entities that operate within it.

Of course, it goes without saying, since it assesses the competitiveness of the national economy as a whole, in addition to calculating the GCI these primary

sources must be used with secondary sources and official sources of information cannot be collected in the manner described in the survey of managers of the economy. There are also various statistics such as number of installed computers and Internet connections, phone lines, data on education and health, monetary and fiscal data, GDP, demographics.

Combining these data were constructed 12 pillars of competitiveness, which can be grouped into three sections, and all together, however, constitute a synthetic GCI (Schwab, 2010, p. 9).

*Figure 2: Factors and pillars of competitiveness*



This methodology is based on a basic division of each phase of development of the economy at beginner, intermediate and advanced level. Under this baseline setting you certainly can accept the view that was verified in practice in most cases, developing countries base their chances to escape from poverty on the exploitation of basic factors such as natural resources, labor and capital. For the country at this



stage of development competitiveness of the economy depends mainly on improving the following pillars: institutions, infrastructure, macroeconomic stability and health and primary education.

For us it is of particular interest the second development phase, where economic growth must be based on increased efficiency. Serbia is precisely in the situation where economic growth can no longer be based on the increased quantum of engagement basic factors of production, rather than use them more efficiently. Economic efficiency in intermediate developmental stage can be raised by improving the competitiveness of the following pillars:

1. Higher education and specialized training
2. Goods market efficiency
3. Labor market efficiency
4. Sophistication of financial market
5. Technological readiness
6. The market size

It is worth mentioning that the share of these pillars of competitiveness has been estimated at as much as 50% of the total in the creation of national competitiveness in the central development phase (Schwab, 2010, p. 23), which is particularly important to share the same in the developed countries. So, to improve the competitiveness of the economy both most currently and in the future, by far the most important pillars of competitiveness mentioned above that determine the economic efficiency. It is interesting to note that in addition to education and technology issues, the main challenge to the countries of the intermediate level of development is related to different aspects of the market, and it would make sense just to improve education in terms of entrepreneurship to see the main directions for improving the competitiveness of the economy. This shows that this kind of education was the most effective in promoting the growth of competitiveness.

Competitiveness of developed countries according to this methodology, in addition to the above, is based largely on the sophistication and innovation of business processes.

## ***ENTREPRENEURSHIP AND COMPETITIVENESS***

The economy is a complex system which includes the functional interaction of various entities. "Businesses are organized by individuals or groups of individuals that make economic decisions, benefiting from them and bear the risk ...." (Labus, 2002, str.23) These are in the modern conditions individuals or legal entities that dispose property in the market which is engaged in economic relations, and perform legal transactions. A common classification of all businesses is:

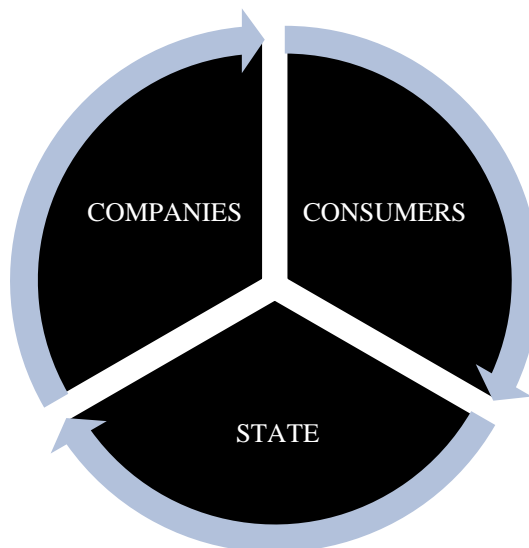
enterprises, households (population) and the state. From the aspect of entrepreneurship education most of us here are interested in the company.

Companies in general are organized group of people with a particular legal status that product and/or provide services transforming appropriate inputs into outputs. The term company means very wide range of organization and ownership. Those are enterprises that in modern market economies create most of the offers on the market. "The value of the market is made by the companies only, but they are limited by the intensity of innovation and dynamism of the company." (Savic, 2010, p.11)

By tradition, it is considered that the objectives of private companies, which dominate in developed economies, especially economically, are ultimately determined by the owners. From the standpoint of the objective function we will be dealing with companies as creators of basic policy, primarily in the private sector, as we have already stated that it considered the methodological basis of economic competitiveness. Thus, the competitiveness at the micro level, in the simplest terms can be understood primarily as their ability to efficiently achieve economic objectives. Of course, the competitiveness of enterprises is largely determined by the competitiveness of the economy in which they operate.

Prevailing theoretical model of the relation, ie. hierarchy between businesses would be fully decentralized model of decision-making system in which all the formal undertakings were fully equal, and in fact there would be no hierarchical supremacy (inferiority) in decision-making.

*Figure 3: A model of decentralized system*



In this model of market economy all economic entities are formally equal, and they are equally important parts of the system. Their relation was not based on the hierarchical

superiority (inferiority) and can be based on competitive arena, as well as on cooperation. These relations are dynamic, but based on formal equality. A key factor in the dynamics of the entire model is entrepreneurship and entrepreneurship education.

Relations between business entities within the economy as a system, in addition to the hierarchical aspects have institutional as well. "Since we are talking about the economic system, the concept of the institution has a special meaning that is different from the one that is gaining in common parlance or in legal terminology. Institutions are enduring form of connection between business entities within which traditional patterns of economic activity are taking place.

The market is a classic example of economic institution: the market's traditional patterns connect buyers and sellers. Planning is another institution in which traditional patterns are taking place on the allocation of economic resources between various uses and authorized users. Property is also an institution: it relocates manner of use, the use and disposal of assets and excludes all other persons other than the owner, in the case of possession of property.

Therefore, the institutions include an established relation between business entities. This continuity must be guaranteed by certain rules of human behavior. Such rules may be custom and tradition, but also the moral and legal norms. Modern societies are dominated by legal norms with sanctions implemented by administrative and judicial machinery of the state. " (Labus, 2002, p. 38-39)

As can already be inferred from the previous presentations, we will in the analysis of competitiveness imply competitiveness achieved by enterprises and national economy in terms of economic system that tends towards specified decentralized model. When we talk about the competitiveness of the company we will have in mind not overcome and abandoned centralized system, but the market model which departs from the World Bank, in its analysis of the aforementioned "Doing Business". On the other hand, when we talk about the competitiveness of the national economy, we assume the existence of similar conditions at the global level as does the World Economic Forum in its "Report on Global Competitiveness." This certainly has its stronghold in practice as a sort of competition between the decentralized market system and centralized planning in the current stage of historical development ended by winning first model.

Property is also an important stable relation (institution) established between businesses and as such is an important element of the economic system. It is an essential component that distinguishes economic systems. This is because the property is essentially a social relationship that is essential not only for the economic system, but also for the entire concrete social system within which this is. At all four stages of social reproduction property is directly affected, it literally defines them.

In modern economic systems all forms of property are represented, a sort of mixed ownership, and therefore such economies are often called mixed economies since the property relations are an essential component of their character. However, despite the great variety of forms of property (personal, collective, private, public, social, mixed ...), for the typology of the economic system is important to point out

that there are basically two main types of ownership of the means of production, which ultimately determine the essential characteristics of the entire economic and social system. These are private and public (social) property.

We also talked about the market as an essential element of the economic system and as an institutionalized relation that defines relation between business entities. The place and role in the functioning of the market economy is the second of the three most important characteristics of economic systems. It is important to note that the market is an economic and social phenomenon that is historically formed at a certain level of development of productive forces and the matter is related to the process of social division of labor. On the other hand, as we have already noted the relation between the elements of the economy as a system, the affirmation of the market as an institution encourages the development of productive resources.

From the aspect of the system it is practically essential how much legal framework recognizes the objective action of economic laws. If there's more respect, then it would be such a successful economic system, ie. will have dynamic growth and development, and vice versa. "The economic law that would allow the elements of the system to eliminate the internal dynamics (competition) or influences from abroad, forcing domestic firms to develop and fight for the market, would directly lead to its demise." (Labus, 2002, p. 47)

This approach advocates a market economy system, who advocates a minimal state and legal interventions for corrective action of the tail-economic rules. Another important role of economic law is the preservation and improvement of the market. Economic regulation applied by the state, which should be minimal, should also act "through" market, and it certainly should not be suspended. In such systems, the main goals of businesses entities - businesses, profits and profitability and the most important is business performance. The hierarchical organization of connections between business entities is in a decentralized basis.

When we all of this about the key role of ownership, market and state have in mind, we might ask what are the most competitive real economic systems. Highly developed capitalist economy is characterized by a minimal state influence on the market, both through legal regulations, as well as through policy measures. Private property is effectively protected and price mechanism operates. These are without doubt the most competitive economies in the micro and macro level, as we witnessed in the reports of the World Bank and the World Economic Forum. These are the simplest terms, entrepreneurial economies.

In general terms, the importance of the economic system is to ensure the most rapid economic growth and development, but with the least social cost. In practice, therefore, the economic system can act positively and negatively in relation to this target of its primary function. "... A well-established system of institutions in an economy means the opportunity to earn higher rates of income growth, faster technical change and thus higher productivity. Contrast, the static framework, ill-defined property relations and other institutional barriers limiting and do not stimulate economic activity. Badly put the institutional system of the economy in

the long term only leads to a redistribution of already existing values and rentier economy, and does not lead to an increase in productivity as the basis for rapid development." (Labus, 2002, p. 477)

We conclude that for most countries, the main precondition for growth and development, is to improve the competitiveness of its economy. Export growth and the creation of attractive conditions for investments have no alternative. On the other hand, we can conclude that the greater competition for one of the basic assumptions of market-oriented economic right system is based on private property and private initiative.

Entrepreneurship is the basic driving force of any economy, regardless of its size. The last decade in 20. Century has witnessed the powerful emergence of entrepreneurial activity in the United States. „Many statistics illustrate this fact. For example, during the past ten years, new business incorporations averaged 600.000 per year. Although many of these incorporations may have previously been sole proprietorships, the trend still demonstrates popularity of venture activity, whether is trough start-ups, expansions, or development.“ (Kuratko, 2003, p. 3)

## ***ENTREPRENEURSHIP EDUCATION AS A FACTOR AND A PREREQUISITE TO IMPROVE THE COMPETITIVENESS***

Looking at the economic results in this century in the whole world, it can be concluded that they are better when the economy has more entrepreneurial focus. Here, we think first of all the representation of institutional markets as the focal point and the relation between business entities, and of the basic ways to satisfy their economic interests. If it is effective, so much more the economy is competitive as a whole and as its individual parts. We believe in an integrated market, or a market that includes not only goods and services in the strict sense, but to the market as the primary regulatory mechanism that includes economic and financial markets, and the labor market. Also, we consider a market that spreads across borders, because ultimately the market cannot exist otherwise than as a global market. Despite the different historical circumstances and local specificities, it is obvious that in the long term there is a growing realization of the idea of an integrated global market. The goal of each participant in can only be to increase its maximum competitiveness.

### ***Education and GCI***

Professor Sala-i-Martin at the beginning of the century constructed GCI (Global Index of Competitiveness) which connects micro and macro-economic factors, competition, and as we have already mentioned in the context that he was adopted and used by the World Economic Forum since 2005. in its report on global

competitiveness (Global Competitiveness Report). In this, the most important topic for our national competitiveness report is defined as "... a set of institutions, policies and factors that determine the productivity of a country." (Schwab, 2010, p. 17)

As we noted competitiveness is assessed by considering the 12 pillars of competitiveness, of which we in this study focus attention on those that are primarily related to education. Education is one of the many activities that build up the economy of a country. Service industries have an increasing importance. Previously, until only a few centuries, it has not held an important place in human history. However, in modern conditions, especially in a market-oriented economic systems, the role of education is of manifold importance, since it is the basis of progress. For us it is especially interesting role of education at different levels of economic development. As we have already pointed out that, along with other so-called service industries of tertiary sector, education participate in the creation of 75% of GDP in developed market economies, while in non-developing economies the economic structure is completely different.

Entrepreneurial education is especially important as the activity of market-oriented economic systems that tend to accelerated development, ie. are in transition. It is a powerful tool for transforming the traditional economy to a market. Education that expands the idea of market freedom and empowers people for independent business is the base of a new society.

Education was primarily related to the Fourth and fifth pillar of competitiveness. The fourth column includes health and primary education, and is particularly important for countries at a rudimentary level. "In addition to health, this pillar takes into account the quantity and quality of basic education by the population received which is increasingly important in today's economy. Basic education increases the efficiency to each individual worker. Moreover, a workforce that has little formal education received can carry out only basic manual work and finds it much more difficult to adapt to more advanced production processes and techniques. Lack of basic education can therefore become a constraint on business development, with firms finding it difficult to move up the value chain of producing more sophisticated or value-intensive products" (Schwab, 2008, p. 5)

However, most economies in the world overcome the initial development steps, so fortunately the majority of people no longer live in the poorest countries where primary education is an important factor in competitiveness. For all other major economies education and training is far more important, which Fifth pillar of competitiveness consists of. This pillar belongs to the group of economic efficiency factors which affect 50% of the competitiveness of the economy in the medium and high level of development. "Quality higher education and training is crucial for economies that want to move up the value chain beyond simple production processes and products. In particular, today's globalizing economy requires economy to nurture pools of well-educated workers who are able to adapt rapidly

to their changing environment. This pillar measures secondary and tertiary enrollment rates as well as the quality of education as assessed by the business community.” (Schwab, 2008, p. 5)

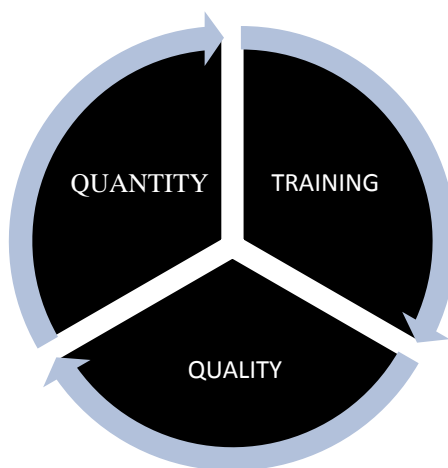
In addition to training employees to perform specific tasks, and that is implemented in the organization and competence of the company, and that we will not deal with it broader, more education (secondary and higher) is important for the efficiency of the economy, especially if it is entrepreneurial oriented.

The Fifth pillar of competitiveness affects the strengthening efficiency of 17%, which means that the overall competitiveness of the countries which overcome initial stage of development accounts for 8.5%. Otherwise, the pillar is made up of three equal elements with equal importance, namely:

1. quantity of education
2. quality of education and
3. business training.

Education which is the subject of our interest therefore constitute 2/3 of this pillar of competitiveness, or near 5.7% of the overall competitiveness of moderately developed and developed economies.

*Figure 4: The structure of the Fifth pillar of competitiveness*



Quantity of education is measured by the methodology of the World Economic Forum:

1. Enrollment in secondary schools and
2. Enrollment in high school

These indicators are monitored through enrollment % of graduates of primary school students in secondary schools and secondary school graduates to colleges and universities. The percentage ratio is calculated for each year between the total number of elementary graduates (secondary) schools and total enrollment in secondary school (high school and college). Countries are ranked according to

these criteria by those at the top who had given the highest %, and those at the bottom were the lowest.

It is interesting to note that in some countries, as many as 27 according to the latest report, the percentage of secondary school enrollment is above 100%, meaning that there more pupils enrolled in secondary schools than there graduated from primary schools. This can in principle be explained by two possibilities: post-service education students who have already acquired basic education and mechanical increasing population, including a significant number of those who entered high school in the new country. With enrollment at colleges and universities this indicator for all countries is below 100%.

As for the quality of education, it's been followed in this methodology across a number of indicators including:

1. The quality of the education system,
2. Quality of math and science education,
3. Quality management and business education
4. Internet access in schools.

The quality of the education system in each country is graded on a scale from 1 to 7, depending on how the education system meets the needs of a market economy. It is similar to the quality of math and science education, which also represents the lowest grade 1 and 7 are the best. In the same way it assesses the quality of school management or business, as well as access to the Internet in schools. Countries are ranked by being on top of those with the highest grades, close to 7, and one at the bottom of the lowest rated, with barely score greater than 1.

## ***Education and SCI***

Three decades ago in economy term sustainable development has appeared. This theory was developed in the 80-ies of the last century and is widely accepted by the world's most distinguished institutions involved in monitoring the global economy. Thus, in the report on global competitiveness in the world in 2011-2012 we find a treatment of this issue by the World Economic Forum. It is seen that GCI does not respect the long-term perspective of competitiveness, but only measure the current performance of each national economy.

Next step was designing the long-term competitiveness index SCI (Sustainable Competitiveness Index). It includes factors that determine competitiveness in the long term, even if some of them do not fall under the GCI. This, so to say, a broader concept of competitiveness is preliminarily defined "...as the set of institutions, policies and factors that determine the level of productivity of a



country while ensuring the ability of future generations to meet their own needs.” (Schwab, 2011, p. 54)

This beneficial long-term concept includes all the factors contained in GCI who have long-term impact on competitiveness as well as some new ones that are related to the environment, demography and society. Here we have as many as 17 pillars of sustainable (or long term) competitiveness that are divided into 5 groups.

*Figure 5: Lines for SCI*

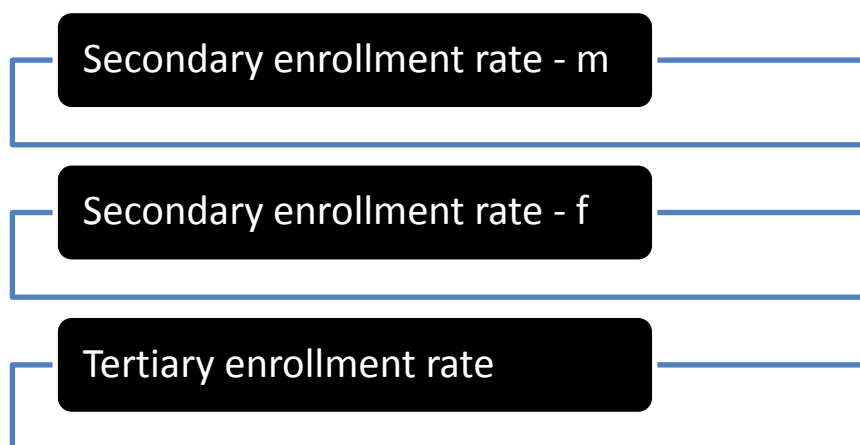


From the point of our study it is of particular interest the first group of factors which is certainly the most important, and includes the following pillars of sustainable competitiveness:

1. Health and primary education
2. Higher education and training
3. Social cohesion.

We can see here that education plays a dominant role, and that innovation is only the third pillar - social cohesion. However, we are particularly interested in the treatment of Higher Education and Training. Is there a difference in approach compared to previously exposed to the concept of GCI? Here, education is treated identically, except that the author analyzes its quantitative aspect. “Within the higher education and training pillar, the SCI replaces the indicator describing the overall secondary enrollment rate with separate enrollment rates for males and females. Splitting this indicator by gender makes it possible to highlight whether the economy educates boys and girls equally, an issue particular relevance given the importance female education for the health and well-being of future generations.” (Schwab, 2011, p. 56) So now we have a more detailed picture of the Higher Education quantities than it was at GCI.

Figure 6: Quantitative aspects of the Higher Education - SCI



We can conclude that in this concept of long-term sustainable competitiveness Higher education gets a higher priority ranking, while his first quantitative methodological factor - enrollment in secondary schools, is considered in more detail - by gender. If this research practically comes to life, and the World Economic Forum has already formed a committee to deal with that, we'll have a picture of the national economy in terms of sustainable competitiveness for a period of 20 years. For us it is important that it is assessed as well as the long-term aspects of competitiveness where Higher education has a more prominent place.

Our proposal for the further improvement of this indicator would be the extension of the qualitative analysis of higher education in terms of equality. And here, in our opinion, should pay special attention to female education. This is so that technical progress would not put women in the inferior position in the labor market. "The incompatibility of labor force availability in the labor market is widely diffused, particularly for women, because they are not included in it. Many of the skills and knowledge of women have been outdated due to the changes in the structure of production, the developed technologies and the new forms of work organization." (Radovic Markovic, 2012, p. 26)

## ***ENTREPRENEURSHIP EDUCATION AND COMPETITIVENESS IN SOME COUNTRIES***

To illustrate the thesis put forward so far we will look at the results of business in ten representative countries which was last published by the World Economic Forum. We selected a representative sample of countries that do not belong to the underdeveloped, so that higher education has a greater impact on their competitiveness. In the following table countries are given in alphabetical order and are listed on their ranking by development and competitiveness parallel, according to the Report 2011-2012.

***Table 1: Development and competitiveness***

STATE	GDP p.c.	GCI
BULGARIA	69	74
CANADA	11	12
CHINA	83	26
IRAN	78	62
MACEDONIA,FYR	82	79
PERU	75	67
SERBIA	73	95
TURKEY	54	59
UNITED KINGDOM	22	10
UNITED STATES	9	5

*Source: Schwab. (Eds.). (2011). The global competitiveness report 2011-2012  
Geneva: World economic forum*

In the selected sample one country is among the transition economies of underdeveloped (factor-driven) to a middle-developed (efficiency-driven) and it is Iran. The most dominant economies are those in the middle stage of development (efficiency-driven) and that is half of the sample: Bulgaria, China, Macedonia, Peru and Serbia. Turkey's economy is in the Report evaluated as transitional economy at the turn of this group to the highest group (innovation-driven) which among others are Canada, the United Kingdom and the United States. As you can see, roughly speaking, these countries are ranked by the level of economic development which is highly correlated with the ranking by competitiveness, namely the correlation coefficient is 0,787. Here we see a good match between these phenomena, and the great importance of the competitiveness of the modern global economy.

In the table below we will look at how this group of countries competitiveness and efficiency factor are aligned. According to the theoretical setting, this ratio should show a strong connection between these phenomena.

**Table 2: Competitiveness and efficiency factor**

STATE	GCI	EFFICIENCY ENHENCERS
BULGARIA	74	59
CANADA	12	6
CHINA	26	26
IRAN	62	88
MACEDONIA,FYR	79	87
PERU	67	50
SERBIA	95	90
TURKEY	59	52
UNITED KINGDOM	10	5
UNITED STATES	5	3

Source: Schwab. (Eds.). (2011). *The global competitiveness report 2011-2012*  
Geneva: World economic Forum .

There is a correlation coefficient of **0,938** which tells us that in this group of countries efficiency of using this factor is the dominant element of competitiveness. We can say here that the efficiency and competitiveness can be considered synonymous. We see that the ranking for both indicators match even in the case of the second largest economy of the world - China.

It would be very interesting to investigate how the Fifth pillar of competitiveness has to do with the efficiency of these economies, which will be shown in the following table.

**Table 3: Efficiency factor and the Fifth pillar of competitiveness**

STATE	EFFICIENCY ENHENCERS	HIGHER EDUCATION AND TRAINING
BULGARIA	59	70
CANADA	6	12
CHINA	26	58
IRAN	88	89
MACEDONIA,FYR	87	80
PERU	50	77
SERBIA	90	81
TURKEY	52	74
UNITED KINGDOM	5	16
UNITED STATES	3	13

Source: Schwab. (Eds.). (2011). *The global competitiveness report 2011-2012*  
Geneva: World economic Forum .

And here we come to the high compliance of the theory and practice since we have determined the rank correlation coefficient of **0,923** which only confirms that

more education and training in these countries almost be equated with the efficiency of the economy. So, where the higher education and training are better, the economy is more efficient.

Now we are left to see how the efficiency of the observed economies is affected by education as a subject of our study. We stated that its quantity and quality in this methodology decomposes at 6 elements which are published in the report 2011-2012. The following table shows correlation coefficients for this group of countries if we look at education and training on the one hand, and each of these 6 elements in particular.

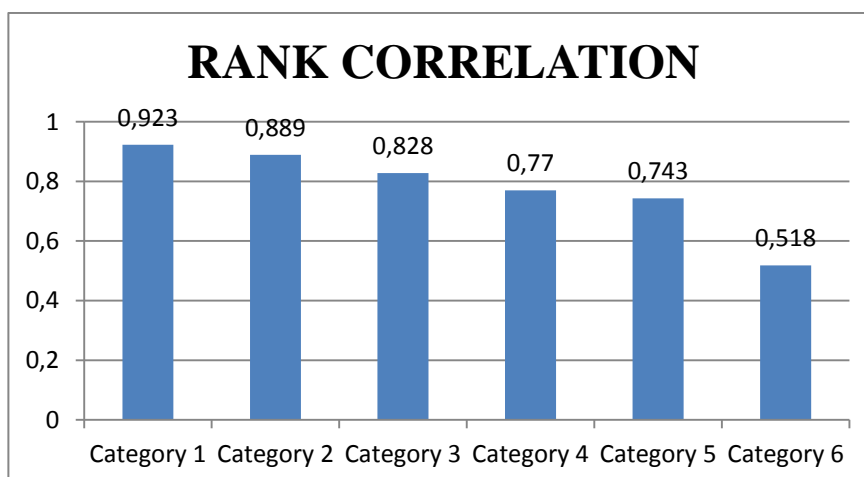
**Table 4:** *The Fifth pillar of competitiveness and its elements*

	Educational factors	Correlation coefficients
1.	Quality of educational system	0,923
2.	Quality of management schools	0,889
3.	Internet access in schools	0,828
4.	Secondary education enrollment rate	0,770
5.	Tertiary education enrollment rate	0,743
6.	Quality of math and science education	0,518

*Source: Calculations performed author*

These results tell us that the ranking of countries is by all elements highly correlated with the ranking by value of the Fifth pillar of competitiveness as a whole. This is especially true of the first two elements, which can even better be seen from the graphic display.

**Figure 7:** *Rank correlation of Fifth pillar and individual elements for measuring the Higher Education*

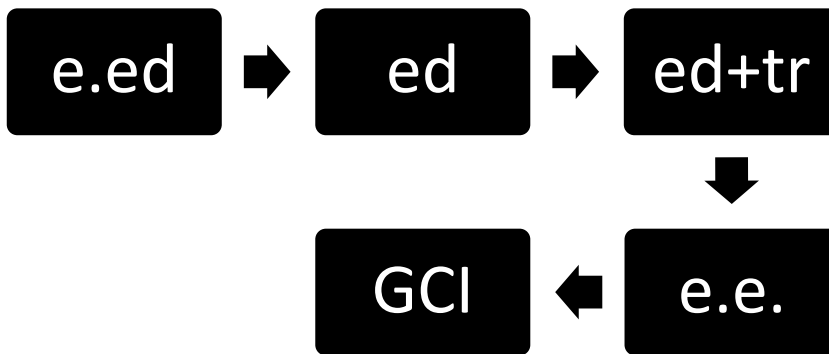


As we can see from this illustrative example the greatest influence on the position of the country's most successful education and training in middle-income and developed countries have entrepreneurial education. The first two on our list of parameters, can take just one name. These are the indicators used to assess the extent to which a country's education system meets the needs of a market economy and what is the quality of schools involved in management and business.

## **CONCLUSION**

Thus, it appears that in modern economies is a high correlation between economic development and competitiveness. Competitiveness (GCI) of middle-income and developed countries heavily depends on increasing economic efficiency (e.e.), and of the higher education and training (ed+tr). In this fifth pillar of competitiveness the importance of Education (ed) dominates within which entrepreneurship education is the most important (e.ed).

*Figure 8: The link between entrepreneurship education and global competitiveness*



We can conclude that the success of entrepreneurship education in the country, in the final analysis can securely be connected to the global competitiveness of its economy. This means that the promotion of entrepreneurship education is progressive direction for all countries which had left the circle of the poorest. This training is important because it contributes to competitiveness at the micro and macro level. At the micro level, it trains labor force to be employed and self-employed in market conditions. At the macro-level it promotes the idea of an entrepreneurial economy, and we saw that it was the most competitive entrepreneurial oriented economy.

Because there are strong links between entrepreneurship and competitiveness it is necessary to further develop indicators of determinants of entrepreneurship. „All in all, the indicators of determinants require further development especially in the areas of entrepreneurial education, access to venture capital business services and taxes, where the demand is manifestly high.“ (Ahmad, 2008, p.p.20)

Only an expansion of this activity ensures perspective society in the long run. However, one should be aware that the development of this field pulls the economy and society forward only if provides significant dynamics which involves primarily the ongoing reforms and restructuring of the important activities as well as significant investment in financial and technical infrastructure.

Entrepreneurial education is the important place. “Entrepreneurship is new and it’s about continual innovation and creativity. It is the future of business schools and should begin to move into leadership role. Today, the words to describe the new innovation regime of the 21. Century are: *Dream, Create, Explore, Invent, Pioneer* and *Imagine!*” (Kuratko, 2003, p. 22)

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# **MOTIVES OF VOCATIONAL HIGH SCHOOL STUDENTS TO START RUNNING OWN BUSINESS**

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## ***Abstract***

*The paper will illustrate the results of the empirical research “Entrepreneurial Aspirations of the Vocational High School Students” with special reference to the reasons for starting own business, perception of own constraints and environment-related constraints as well as perception of necessary requirements and support.*

*The research was carried out in June 2012 on a sample of 300 students selected in three vocational high schools: School of Economics and Trade in Kikinda, “Uroš Predić” Chemical Engineering, Food and Textile Industry School and “23.maj” Technical School in Pančevo.*

*The test methods, statistical methods and benchmarking method have been applied during the research.*

*The following assumptions have been made: a) the underlying motive of the students who participated in the research for starting their own business is of financial nature; b) the surveyed students do not plan to start running their own business in the near future; c) the greatest support when starting business is expected from parents.*

*The obtained data have been processed by applying the statistical methods.*

**Key word:** *entrepreneurship, entrepreneurial aspirations, constraints and aspirations for entrepreneurship.*

## ***INTRODUCTION***

Young people make up 1/5 of global population and 50% of the total global labour force. Young people cover more than 98 million of 192 million of unemployed people. 85% of young population live in the developing countries.

As forecasted by the ILO (International Labour Organization), approximately 660 million of young people will seek employment.

As a result, there is a growing recognition among governments and international organisations that as jobs become scarce, youth entrepreneurship becomes an important strategy for integrating youth into labour markets.

In some countries youth entrepreneurship has been recognised as a promising option for reducing unemployment.

Entrepreneurship may help to keep economy growing, integrate labour force and yield an overall development of society.

The literature about young entrepreneurs suggests a number of characteristics that describe young entrepreneurs compared to their adult counterparts and while young people are more likely to have positive attitudes towards self-employment, reality impedes them. Due to limited resources, life and work experience, they face greater barriers than older age cohorts (Schoof 2006, Blanchflower and Oswald 1999).

Meager 2003 claims that there is evidence of positive advantages to stimulating youth entrepreneurship. Young entrepreneurs are more likely to hire fellow youths; young entrepreneurs may be particularly responsive to new economic opportunities and trends; young entrepreneurs have generally better computer skills; young people are more present in high growth sectors; young people with entrepreneurial skills are better employees.

An OECD study showed that while young people were more likely to have positive attitudes to self-employment, they were less likely to be self-employed in practice. Further, the same study found that those who became self-employed had higher "life satisfaction" than youth in the same age group, and young men were more likely to be self-employed than young women (Blanchflower and Oswald 1999).

In every society, entrepreneurship, particularly youth entrepreneurship is a sign of progress and development as it has an impact on social, cultural and economic development.

However, entrepreneurship by itself is not a solution to the problem of youth unemployment. Entrepreneurship should be observed as one of the solutions in a broader sense.

The importance of youth entrepreneurship is reflected in:

- creating opportunities for youth self-employment and employment,
- integration and introduction of marginalized groups in the economy,

- impact on some of the socio-psychological problems and delinquency that arise from unemployment,
- promotion of innovation and novelties,
- promotion of revitalisation of local economies,
- young entrepreneurs may be particularly sensitive to new economic opportunities and trends,
- entrepreneurship provides young people with a sense of usefulness and belonging,
- Entrepreneurship helps young people develop new skills and gain experience that may be applied in various different real life situations.

## ***INSTITUTIONAL FRAMEWORK FOR THE DEVELOPMENT OF YOUTH ENTREPRENEURSHIP IN THE REPUBLIC OF SERBIA***

Youth entrepreneurship is recognised as a drive of economic development and powerful instrument in the social integration policy in Serbia

The most important documents which define the area and framework for the development of youth entrepreneurship are:

1. National Youth Strategy
2. Action Plan for the Implementation of National Youth Strategy
3. Youth Law
4. National Employment Strategy
5. National Action Employment Plan
6. Local Youth Employment Plans

An umbrella document in this area is the National Youth Strategy adopted by the Government of the Republic of Serbia in 2008. The strategy is based on the vision that “young people in the Republic of Serbia in the 21<sup>st</sup> century are active and equal participants in all areas of social life and are entitled to equal opportunities for full development of their potential. It implies their active role in family life, education, health and overall social life.”

One of the objectives of the Strategy that is of vital importance for the development of youth entrepreneurship in the Republic of Serbia is encouraging and stimulating of all types of employment, self-employment and youth entrepreneurship (Objective no. 8). As a part of this objective, specific objective 8.3 refers to youth entrepreneurship and self-employment.

The Action Plan for the Implementation of 2009-2014 Strategy emphasises the importance and role of entrepreneurship in improving the status of young people in Serbia.

The Youth Law was adopted in 2011. It governs the following areas: institutional and system care for young people, principles of the youth policy, general interest in the youth policy, National Youth Strategy, establishment and operation of national youth associations. This law is of essential importance for organisations engaged in the development of youth entrepreneurship because it governs the requirements for launching youth projects.

Based on the proposal put forward by the Ministry of Economy and Regional Development, the Government of the Republic of Serbia adopted 2011 – 2020 National Employment Strategy by virtue of which the policy, objectives and employment priorities by 2020 have been defined.

The primary objective of the employment policy is to establish an efficient, stable and sustainable upward employment trend in the Republic of Serbia by the end of 2020 as well as to fully harmonise labour market institutions with EU acquis. A number of cities and municipalities in Serbia has drafted or started to draft local employment plans with special emphasis on youth employment.

## ***FACTORS AFFECTING ENTREPRENEURSHIP DEVELOPMENT***

The factors affecting the development of entrepreneurship may be classified into:

### 1. Personal characteristics (traits)

The personal traits of entrepreneurs are essential in the starting phase of running business. The ability to learn based on experience becomes more important following the establishment of business, while the growth and development of business depend on acquired experience, knowledge and skills to adapt to environment-related impacts. However, the most important issues are a good business idea, product or service that has market potential and required resources for the successful implementation of the idea.

The following traits may be distinguished as traits of vital importance for entrepreneurs:

- risk-taking,
- independence,
- inner control centre,
- live with excitement,
- self-initiative,
- confidence,
- ability to adapt,
- persistence,
- ambiguity, refers to the dilemma of choice,
- recognition patterns, broad understanding of the problem and coming to grips with the problem,
- little need for assistance.

## 2. Culture

The incentive culture, i.e. culture that supports the entrepreneurship and economic growth prioritises education.

Those nations which in the last century paid great attention to education and continued to do so even today have created a main precondition to become economically developed countries .

Education is a foundation of modern progress. It is an education that provides profound knowledge, information and skills as three integral components of one education system. In view of being practical, contemporary education yields active knowledge. It is not only used for socialization purposes, but it is used as an instrument for development of skills, talents and ambitions of each individual and the entire community.

Knowledge raises the entire level of modern society: it improves existing and identifies economic and cultural conditions, uses new scientific knowledge and becomes a part of new products and services (innovation).

Knowledge must be prolific. It should produce innovations and new information that directly involve and improve the economy, technology, organization. (Prof. Ivan Šijaković)

## 3. Circumstances of career pathway

The likelihood that someone will become an entrepreneur is also affected by the situational factors which take place in different periods of life. Therefore, the reasons for starting own business may be the following:

- inadequate working environment, leaving a job and starting own business,
- negative experience, received dismissal letter, divorce etc.
- career development, graduation, end of military service etc.
- people who have a positive impact, individuals who encourage people to start running their own business.

## 4. Environment Factors

Characteristics and general requirements, reached development degree and promising features of external environment may stimulate and encourage or discourage and restrict entrepreneurial endeavours and success.

Requirements, opportunities and threats of the external environment are of crucial importance for the business of all entities and business activity of all entrepreneurs. This importance is even greater given the fact that the effects of environment factors are often difficult to predict, assess and measure and often they can neither be controlled nor shaped by business entities.

In order not to have these effects perceived solely as “force majeure”, entrepreneurs should have all required information and knowledge about the most important environment impacts in order to take the maximum advantage of positive effects and avoid or reduce negative effects as much as possible.

## **RESULTS OF THE EMPIRICAL RESEARCH “ENTREPRENEURIAL ASPIRATIONS OF VOCATIONAL HIGH SCHOOL STUDENTS”**

The research was carried out in June 2012 on a sample of 300 students selected in three vocational high schools: School of Economics and Trade in Kikinda, “Uroš Predić” Chemical Engineering, Food and Textile Industry School and “23.maj” Technical School in Pančevo.

School	Number of participants
School of Economics and Trade in Kikinda	36% of participants
“23.maj” Technical School in Pančevo	30% of participants
“Uroš Predić” Chemical Engineering, Food and Textile Industry School	34% of participants

The following methods have been applied during the research:

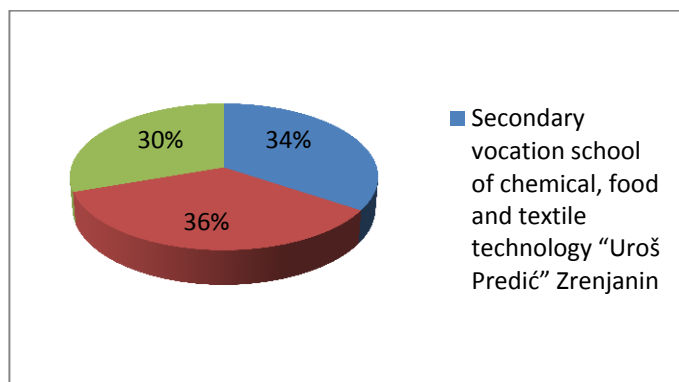
- test method,
- statistical methods and
- benchmarking method.

The following assumptions have been made:

- a) the underlying motive of the students who participated in the research for starting their own business is of financial nature;
- b) the surveyed students do not plan to start running their own business in the near future;
- c) the greatest support when starting business is expected from parents.

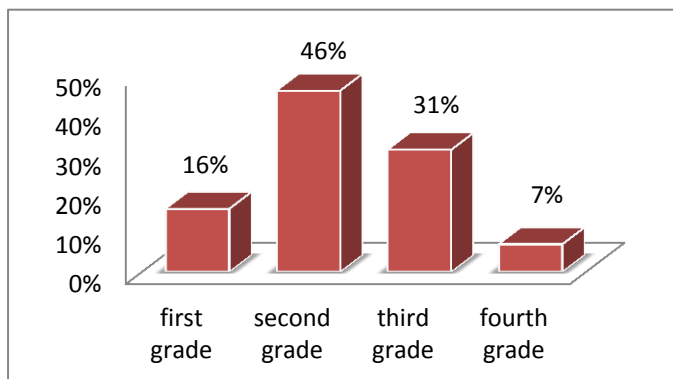
The obtained data are processed by applying statistical methods.

**Figure 1:** Structure of Samples according to the type of high school



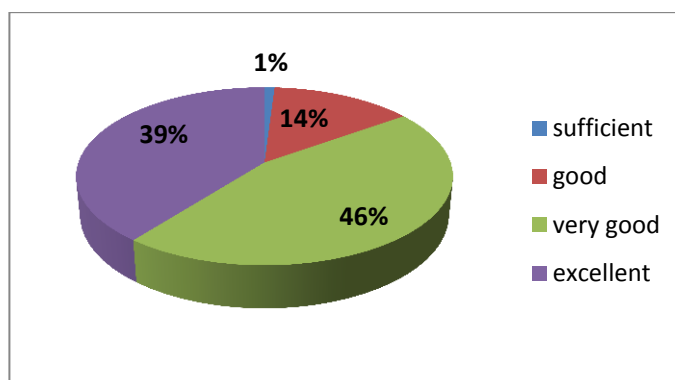
The students of all high school grades have been surveyed. 46% of surveyed students were the second-year students, while 31% of surveyed students were third-year students. 16 % of surveyed students were the first-year students while only 7% of the surveyed students were the fourth-year students.

**Figure 2:** Structure of the sample according to the age



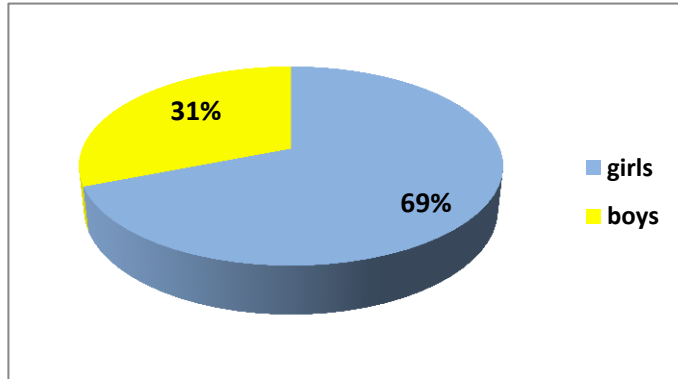
The students with very good and excellent marks dominate among the surveyed students. 45% comprised students with very good marks, while other 39% comprised students with excellent marks. 14% comprised students with good marks and only 1% comprised students with passing marks.

**Figure 3:** Structure of the sample according to the marks in the high school quoted in percentages %



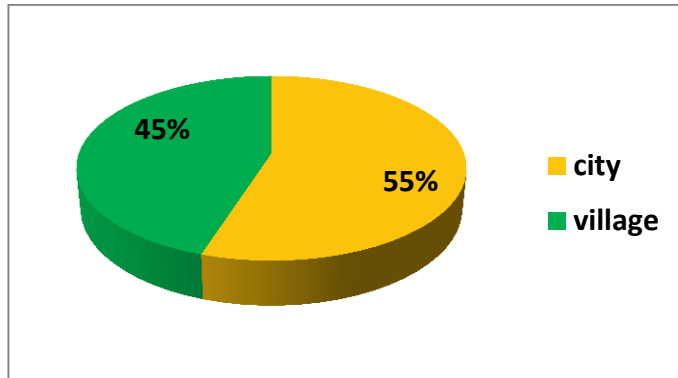
The gender structure comprised 69% of girls and 31% of boys.

**Figure 4:** Gender structure of the sample quoted in %



In relation to residential status, the sample structure comprised high school students from urban (55%) and rural (45%) areas

**Figure 5:** Structure of the sample in relation to the residential status



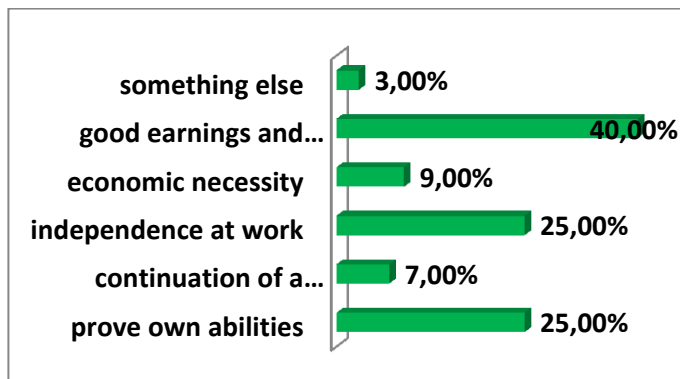
### ***MOTIVES FOR ENTREPRENEURSHIP AND ENTREPRENEURIAL PLANS***

The dominating reasons among students for starting their own business are good earnings and associated good living standards (40%). The second-ranked reasons are: a personal desire to prove their own abilities and desire for job autonomy (25%), followed by economic necessity (9%) and desire to continue family tradition (7%).

However, all together, these data indicate that inner reasons such as desire to express own skills, desire for autonomy and desire to continue family tradition (57%) are stronger than external reasons such as good salary and good life or inability of finding alternative employment (49%).

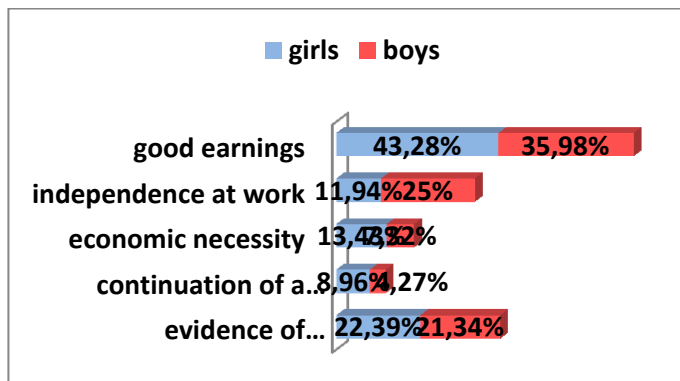


**Figure 6: Reasons for starting own business**



During the analysis of answers obtained to this question in relation to the gender structure of the sample, the presence of considerable difference in terms of statistics has been identified (chi square = 12.41, dr = 5, p < 0.01). Namely, the girls more often stated autonomy as the main reason for starting their own business than boys. Both categories often selected a good salary and good life as an answer to this question. However, boys are more prone to see good salary and good life as a reason to start running their own business.

**Figure 7: Reasons for starting own business in relation to gender**

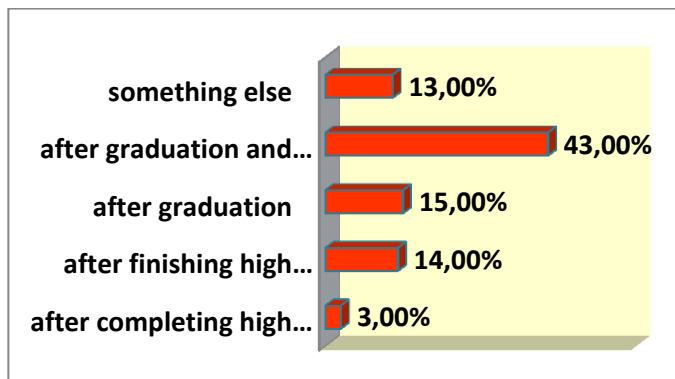


The obtained results may be compared with the research conducted by the Youth Business International in 2011 during which the participants provided the following answers: 73% of participants stated that they have always wished to start running their own business. Most of them were men (87%). 39% of participants stated that the reason for starting their own business is the identified gap in the market that could have been occupied. 18% of participants did not have another option to earn a living and only 5% decided to start running their own business under the influence of their family and friends.

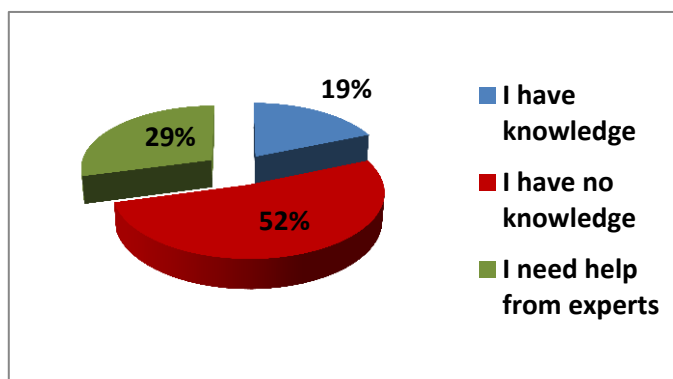
Based on this comparison, it is evident that most young people from European Union see the opportunity to seize the market as the underlying motive for starting their own business, while in Serbia good salary comes in the first place.

Although less than half of participants stated that they intend to start running their own private business, a number of participants provided answer that they plan to start running their own business in the future. Namely, three-quarters of participants opted for one of four available options related to the time period during which they would like to start running their own business: most of participants plan to achieve their entrepreneurial ambition in the relatively distant future, specifically following the completion of studies and spending several years working in the profession (43%). Significantly fewer participants plan to start running their business after the completion of their studies (15%), followed by those who intend to start running their own business after they finish high school and spend several years working (14%). Only 3% of participants would start running their business immediately following the completion of high school (3%).

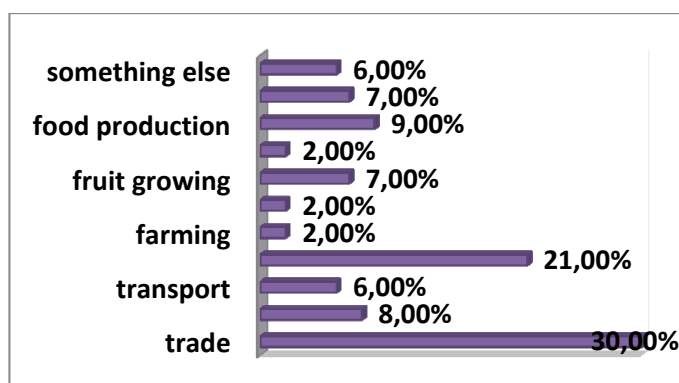
*Figure 8: Planned time period for starting private business*



The idea of running business is not unknown to the students of vocational high schools in Banat as shown by the above chart. However, this idea in their plans is postponed for some relatively extended period of time which the surveyed young population would use to acquire new knowledge, skills and gain confidence. In this regard, the surveyed high school students responded to the question (“In the case that you want to start running your own business following the completion of high school, do you believe that you possess enough knowledge and skills?”) as follows: 50% of students stated that they do not possess enough knowledge, 28% of students stated that they need the expert assistance, while 18% of surveyed high school students answered affirmatively to this question.

*Figure 9: Perception of the level of knowledge for starting private business*

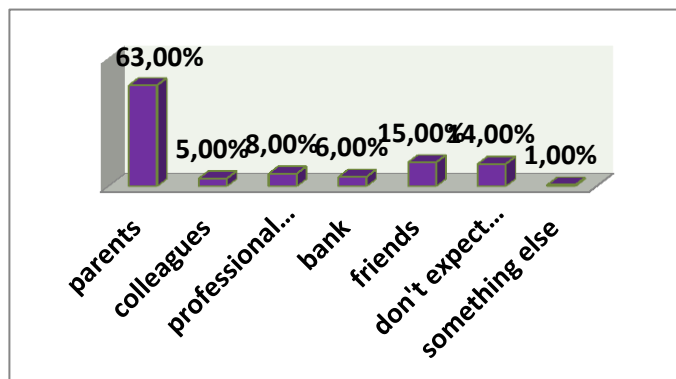
In view of the type of planned entrepreneurial venture, this research showed that 69% of surveyed students plan to engage in the service sector (trade – 30%, intellectual services– 21%, craft – 8% and transportation – 6%), while slightly less than a third (29%) is interested in the some type of production as the basis for their own job (food production– 9%, textile manufacturing and fruit growing – 7%, while only 2% opted for farming, animal husbandry and crops).

*Figure 10: Type of planned private business*

That entrepreneurial plans of surveyed high school students are still vague and more in the sphere of their imagination testifies the fact that nearly a half of the surveyed students (46%) does not know how much financial resources they need to start running their own business.

The surveyed students mainly expect the support for their entrepreneurial ambition in the sphere of their personal, private life. Therefore 63% of students expect this support and assistance from their parents. 15% of students expect the support from friends, while 5% expect to obtain support from their colleagues. A significant number of surveyed students (14%) do not expect any kind of assistance, while 8% of surveyed students expect to obtain support and assistance from professional institutions, and 6% of surveyed high school students expect to obtain support from banks.

*Figure 11: Perception of the support for starting private business*



The research conducted by the NGO “*Građanska inicijativa*” shows significantly different view of research participants. Namely 66% of surveyed participants would try to become entrepreneurs if they would receive financial support from the state in the early years. 54% would try to become entrepreneurs, if the market would be dominated by health competition. 52% would try to become entrepreneurs if they would get a favourable loan and 46% would try to become an entrepreneur if they would have an opportunity to gain experience in running business.

Based on the answers obtained during the aforesaid research, we may see that young people expect the greatest support from the state and financial institutions. However, our research indicates that surveyed persons primarily rely on their parents and friends.

During the research a considerable number of high school students did not show pronounced entrepreneurial aspirations. 57% of surveyed students either stated that they do not intend to start running their own business at some point in the future (15%) or that they have not been thinking about that yet. 3% of surveyed students did not provide any answer. These students responded to the question “If you do not intend to start your own business, please specify the reasons” by ranking the available options (1-5) as limiting factors for starting their own business.

The obtained distribution of answers quoted in mean values is the following: the highest mean score (3.46) was awarded to the statement “in this country the only successful people in private business are scammers“. The second place in terms of the average score is also awarded to the external factor which is related to the opinion that the political and economic situation in the country is unstable (2.98). The third place is related to the unwillingness of students to take the risk associated with the entrepreneurial venture (2.64). The fourth place occupies the limiting fact that they do not have sufficient acquaintances (2.56), while the fifth place is related to the lack of information (2.52). The sixth place is related to the lack of knowledge (2.34). The seventh place is related to the lack of support (2.24),

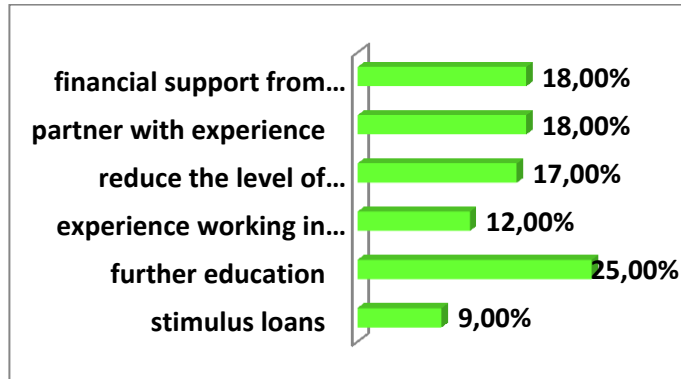
while the eighth place is related to the lack of idea (2.18). Finally, the students specified the lack of confidence (2.07) as one of the reasons for the lack of pronounced entrepreneurial aspirations, while the unwillingness for dedicated work required by entrepreneurship occupies the last place (2.05).

*Figure 12: Perception of limiting factors for starting own business*



As it can be seen from the above chart, the surveyed students perceived the contextual factors, such as social milieu in which entrepreneurs often got reach by using illegal or semi-legal means or taking advantage of unstable political and economic situation, as the main limiting factors for entrepreneurial ambitions. On the other hand, the surveyed students who do not exhibit pronounced entrepreneurial aspirations would change their negative attitude towards the possibility of starting their own business if they would receive additional education (25%), have an experienced partner (18%) or obtain financial support from the family or friends (18%). They would also change their negative attitude if the corruption level would be reduced (17%) or if they would have a chance to gain experience by working in the private sector (12%) or meet the requirements to obtain incentive loans. As it can be concluded based on the answers to this question, the surveyed students attribute a higher importance to knowledge and experience than to the so called contextual factors such as the reduction of corruption level, and the possibility of obtaining incentive and favourable loans. All together, the knowledge factor embodied in the options: knowledge and experience in the work within the private sector and work with the experienced partner constitute 55% of answers as opposed to contextual factors which together make up 26% of the answers.

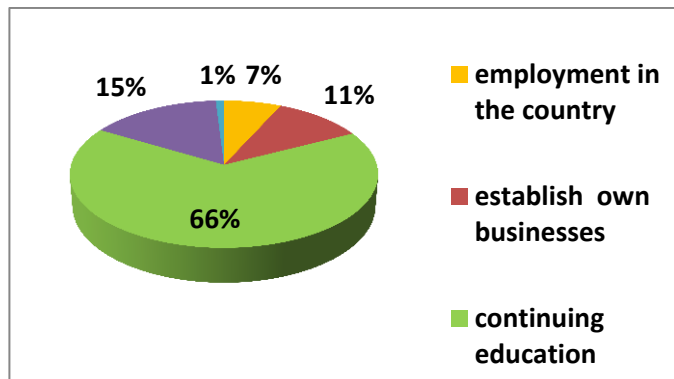
*Figure 13: Perception of the necessary requirements for starting own business*



### ***PLANS FOR THE FUTURE***

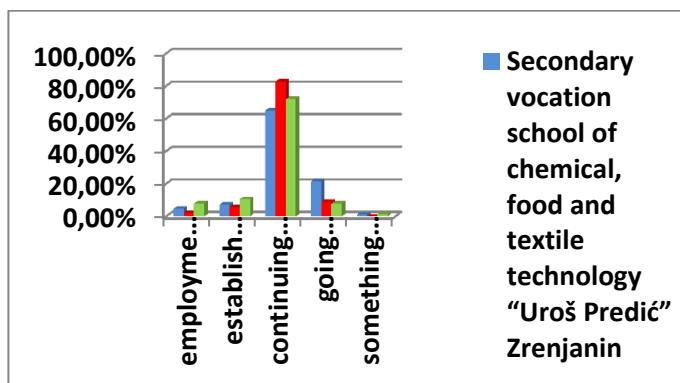
Although the data on the number of people who left the country are not publicly available, the public holds the opinion that the new wave of large-scale emigration of young professionals from Serbia will take place. The first such wave took place in the nineties, while the second wave is still in progress. Judging from this belief, the research also examined the intended movement of the surveyed high school population in Banat. Therefore, the initial question was formulated to read as follows: “What are your plans after you finish the high school?” Most of students responded that they see their future in Serbia (84%) while 16% of students responded that they plan to go abroad for employment. Among the surveyed students who plan their future in Serbia 68% of them intend to continue education in the higher education institutions, while 11% of them plan to start running their own business. 8% of surveyed students plan to find employment.

*Figure 14: Plans for the future following the completion of high school*



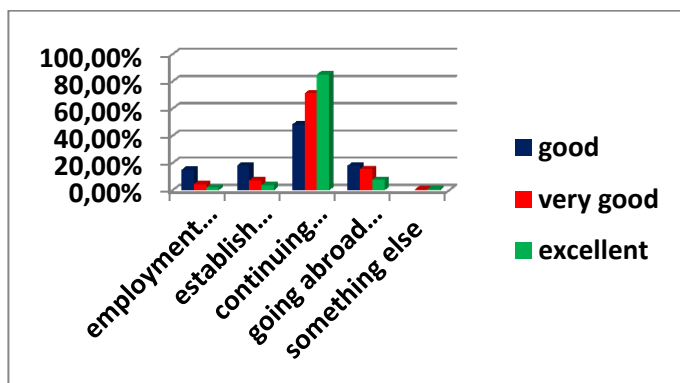
As the chi-square test showed (chi-square =14.12, df=8, p=0.078), although marginal, there is a correlation between the “projection of own future” and “type of high school”. The students of the school of economics often opt for further education, while the students of the chemical engineering and food industry school, as opposed to other two surveyed group of students, often choose the option of traveling abroad for work. The students of the technical school more often opt for establishing their own business.

*Figure 15: Projection of the own future and the type of high school*



The considerable differences in terms of statistics (chi square =37.13, dr=12, p<0.01) have been also identified in determining the relationship between variables “projection of the personal future” and “success in the school”. It can be said that students with excellent marks are more prone to select the option to continue education (more than expected). Also, a considerable number of students with good marks, far more than other students, choose the option to establish their own businesses.

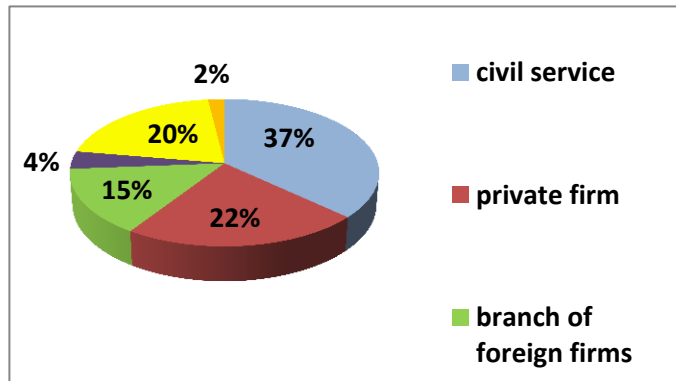
*Figure 16: Projection of the future and success in the school*



In the group of students who planned to stay in the country, we examined the preferred sectors of work. Most of students would like to find employment in the

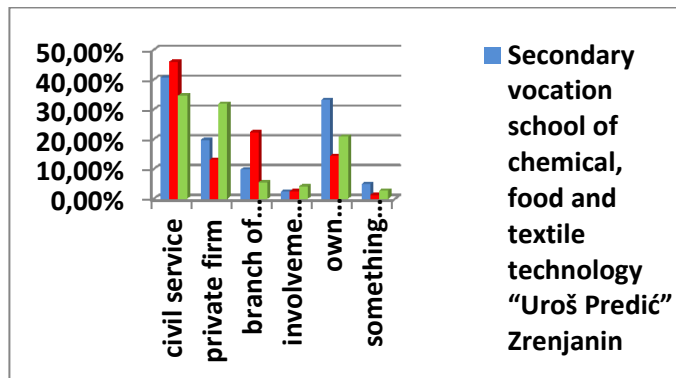
state institutions and or public enterprises (38%). The second place occupy those students who expect that they will find employment in the privately owned companies (23%) and considerable number of students plan to start running their own business (21%). 15% of surveyed students expect to find employment in the organisational units of the foreign companies or banks, while 4% of surveyed students plans to continue family business. As it can be seen, a quarter (25%) of surveyed students sees their professional careers either in their own business or business ran by their parents through the continuation of the family business.

*Figure 17: Preferred jobs of students who want to find employment in the country*



During the analysis of the answer to this question in relation to the type of high school attended by the surveyed students, the presence of considerable difference in terms of the statistics (chi square = 19.95, df = 10,  $p < 0.05$ ) has been identified.

*Figure 18: Preferred employment sectors in relation to the type of high school*



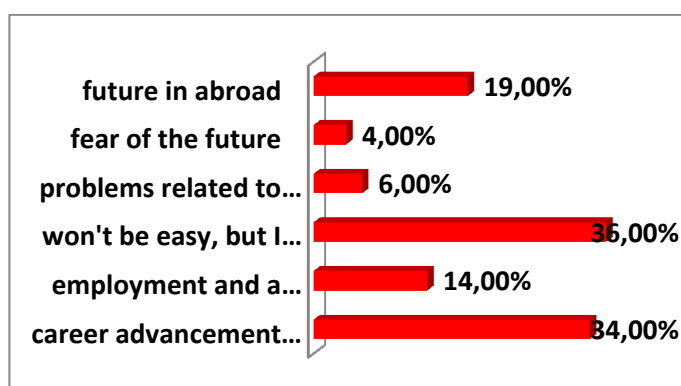
As shown by Figure 4.11.5, the students of the school of economics exhibit greater desire to find employment in the state institutions (46.05%). The students of the chemical engineering school plan more than other surveyed groups to start running their own business (33.22%), while the students of the technical school plan also more than other surveyed students to find employment in the privately-



owned companies (31.94%). The students of the school of economics also chose, more often than the students, the option of finding the employment within the organisational unit of the foreign company or bank.

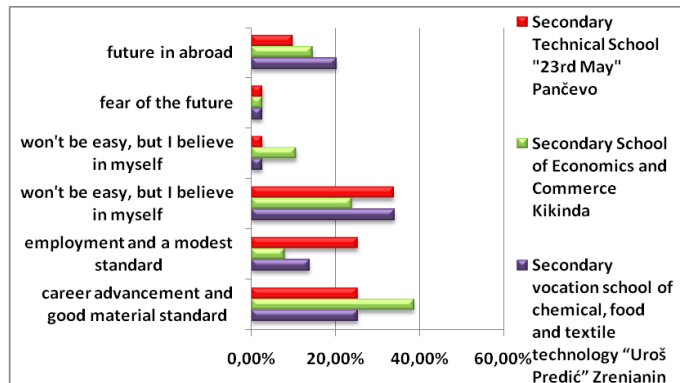
In this part of the research the attention has been focused on the question of how the current generation of high school students see their professional future, what kind of future they actually expect. The vision of the personal future is quite optimistic in the surveyed group of students. In fact, most students in the tested sample have a positive attitude towards the future. Therefore, the majority of surveyed students expect that their future will not be easy, but they believe in themselves (36%), while slightly fewer (34%) students expect career development and good financial status in the future. 19% of the surveyed students see their future abroad. 14% of surveyed students expect employment and modest standard, while 6% of surveyed students expect problems related to employment and existence. 4% of surveyed students are afraid of the future.

*Figure 19: Expected Future*



As the chi-square test showed, the correlation between the “expected future” and “type of high school” has been identified. The results show that a great number of students of the school of economics expect to progress professionally and have good financial status, while the students of the other two schools largely expect that it would not be easily attainable but they trust themselves. They also expect professional progress and good financial status to a slightly less degree (chi square = 2.51, df = 12,  $p < 0.05$ ).

**Figure 20:** *Expected future and the type of high school*



## CONCLUSION

The dominating reasons among students for starting their own business are good earnings and associated good living standards. This testified to the first assumption.

The second-ranked reasons are: a personal desire to prove their own abilities and desire for job autonomy, followed by economic necessity and desire to continue family tradition

The results of the research also show that surveyed students are primarily encouraged by inner reasons for starting own business. Inner reasons such as desire to express own skills, desire for autonomy and desire to continue family tradition are stronger than external reasons such as good salary and good life or inability of finding alternative employment.

The idea of running business is not unknown to the students of vocational high schools in Banat. However, this idea in their plans is postponed for some relatively extended period of time which the surveyed young population would use to acquire new knowledge, skills and gain confidence. This testifies to our second assumption that three three-quarters of surveyed students believe that they do not possess enough knowledge to start running private business or that they need professional assistance.

In view of the type of planned entrepreneurial venture, this research showed that majority of surveyed students plan to provide services, while slightly less than a third (29%) is interested in the some type of production as the basis for their own job.

The surveyed students mainly expect the support for their entrepreneurial ambition from personal, private life. Specifically, 63% expect support from their parents. This testified to our third assumption. Only 8% of surveyed students

expect support from professional institutions, while 6% of surveyed high school students expect the support from banks.

In terms of the vision of own future, it has been established that most surveyed students see their future in Serbia, most of them plan to continue education, while considerably smaller number of surveyed students plans to find employment to start running their own business. Although marginal, a correlation between the “projection of own future” and “type of high school” has been identified. The students of the school of economics often opt for further education, while the students of the chemical engineering and food industry school, as opposed to the other two surveyed group of students, often choose the option of traveling abroad for work. The students of the technical school more often opt for establishing their own business.

Also, the considerable differences in terms of statistics have been also identified in determining the relationship between variables “projection of the personal future” and “success in the school”. It can be said that students with excellent marks are more prone to select the option to continue education (more than expected). Also, a considerable number of students with good marks, far more than other students, choose the option to establish their own businesses

Most of the students would like to find employment in the state institutions and or public enterprises. The second place occupy those students who expect that they will find employment in the privately owned companies while the quarter of surveyed students see their professional careers in running their own business or continuing family business. One of the most important findings of this research is relatively optimistic vision of the future among the majority of surveyed students.

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# ***AN APPROACH TO TEACHING INFORMATION SYSTEM DESIGN***

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## ***Abstract***

*As we live in information age with more and more dominance of computers not only in every aspect of business, but also in our lives. Schools and teachers are continuously forced to be creative and implement new approaches in teaching. The aim of education system is to create ready-made employees, students with necessary skills to plunge into the business, to design information system and to resolve business problems efficiently.*

*Regarding to the above matter, one of the problems is how to educate students in the field of information science effectively. Common challenge is to bring together the theory with practice, especially when students have no business experience. As the result of work experience combined with teaching experience in higher education, new approaches arose.*

*Accordingly, this paper represents an approach and describes the process which could produce better results in teaching.*

***Key word:*** *information system design, database design, teaching information science*

## **INTRODUCTION**

Today's education systems are confronted with very contradictory, strange and unpredictable generation of students. This change is a result of the advanced technology which determines every aspect of our lives. It has transformed not only business environment, but also our social and private life. Society, business and even people went through metamorphosis in the age dominated by new electronic devices, communication systems and information flood. Children are different. For students often labeled as Y-generation, Z-generation and beyond it, computers, Internet, cell phones are something they were born with. Their value system, way of thinking and learning has shaped under the influence of digital technologies. As they live in digital society, they grew up through computer games. **They developed an attitude that everything should be fun and quick, even learning.** They rarely read any instructions on monitors – if any instruction at all appeared. They solve problems by trial and error. On the other hand they live in lonely, isolated world with the virtual perception of reality. The reality has been distorted. These new generations build their social life through Google+, Facebook, MySpace etc, and expect they will get everything by a “magic mouse click”. We could say they think in a black box manner. They are aware of input and they presume and expect certain output, but they are not interested at all how things work in the black box.

In contrast to this, society puts teachers and education systems under high pressure. Their job is to provide excellent employees. Teachers have to prepare students i.e. “ready made employees” for business world who are immediately capable to tackle any business problem as soon as they get a job. Naturally, in knowledge based society it is not enough. **Creativity, innovation, knowledge, competency are the key words for competitive business environment in the 21<sup>st</sup> century.** The future workforce should have solid base of knowledge as it is expected to be the pillar of knowledge society.

But acquiring knowledge requires time, effort, patience and commitment and in most case it is not entertaining at all. **Simply said it is always hard work.**

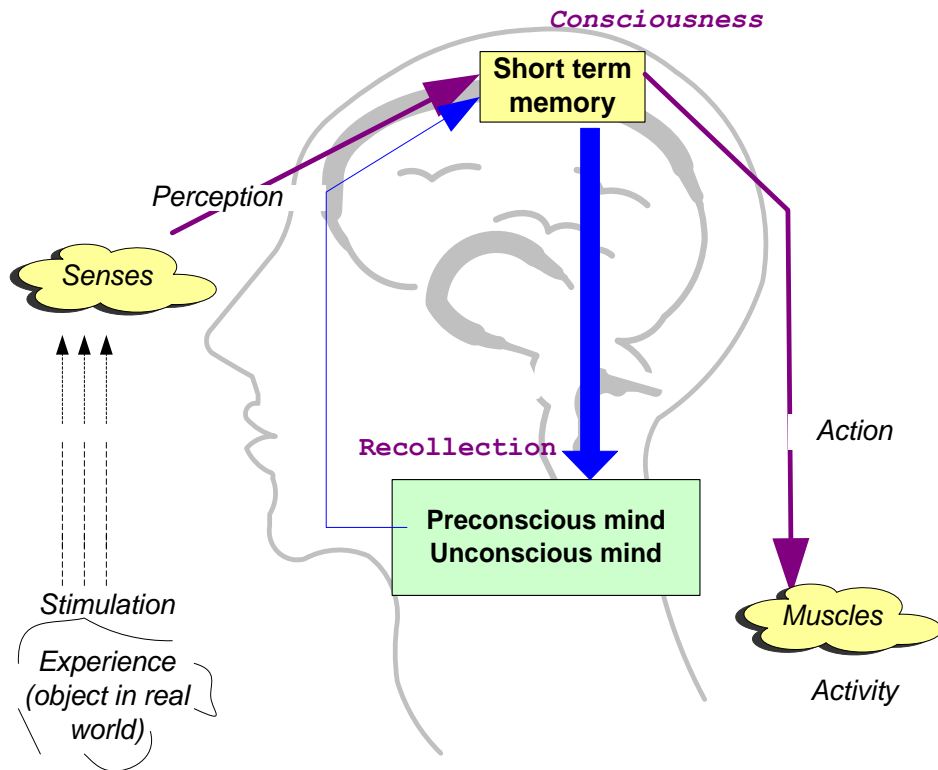
Therefore, this paper with respect of above shortly described issues, starts with discussion of the brain based learning process. Then it follows the explanation of a teaching approach. It has been emerged from real situation in higher education, applying phenomenological models of information processing.

### **How do we learn – innate learning process**

Although the introduction has only given a brief glimpse of today's modern generation values, it draws attention to the learning habits of students and their attitude toward life in the spotlight of new technologies. Regarding to this subtle influence of new, advanced technologies a question has been raised: are these generations' brains hard-wired to different type of learning? Do they learn things in different way comparing to generations before them or the acquiring of knowledge is just buried into the myriad of electronic gadget? To answer these questions we need to understand how the human brain processes information.

One of the interesting explanations for these questions could be found in the field of philosophy of mind, especially in phenomenology. It studies phenomena and how we form meanings of things. As living beings, we are curious. We are eager to discover things and get acquainted with phenomena. To put it in another way, we process information through different kind of experience. This information process has been illustrated on a phenomenology model (figure 1). Due to physical stimulation of our senses we experience some phenomena. In every second we see, hear, smell, touch or taste some object from the real world which results in information process. This happens in the following way. After the sensory organs have been stimulated, they transform the input energy into neural activity creating neural signals which are conveyed to the brain. By processing the neural signals the brain puts in the right place the information and creates mental representations. And that is in a nutshell how we perceive the world around us.

*Figure 1: Phenomenological model of information process in human brain*



But we all know that we could not memorize all the bits of information permanently what our senses perceive. Some of them stay for a longer period and the recollection is easy, but some of them we just sense and forget in a fragment of a moment. The brain is disposed to explosion of immense number of nervous signals on daily bases. But we are not able to transform every stimulus to information and accumulate in the brain. Consequently, information is filtrated immediately when we receive it from the outer world. Otherwise it would burden the brain unnecessarily.

On the other hand, memory is not unitary. Considering the duration of memory, science defines several stages of memory.

The first stage is defined as sensory stage. After the sensory stage the information is stored in the short-term memory. The characteristic of short-term memory is very short time of storage, approximately between 20 to 30 seconds. After that period they are quickly forgotten. Beside that, its capacity is small. It could store small chunks of information,  $7 \pm 2$  items at one moment.

To save information for a longer period, it is necessary to pass information from short-term memory into the long-term memory.

In Freudian psychology preconscious and unconscious mind represented long-term memory. In contrast to short-term memory this information is largely out of our awareness. But they could be quickly, without any difficulty brought into awareness. Preconscious mind is a middle layer and act like a gatekeeper between conscious and unconscious mind and vice versa. Information in unconscious mind is deeply buried. In this layer of memory information are stored which we could retrieve to the conscious state, but also some unpleasant or unacceptable feelings, anxiety or conflict. This memory lies beyond our outer conscious awareness, but it has an influence on our behavior and experience.

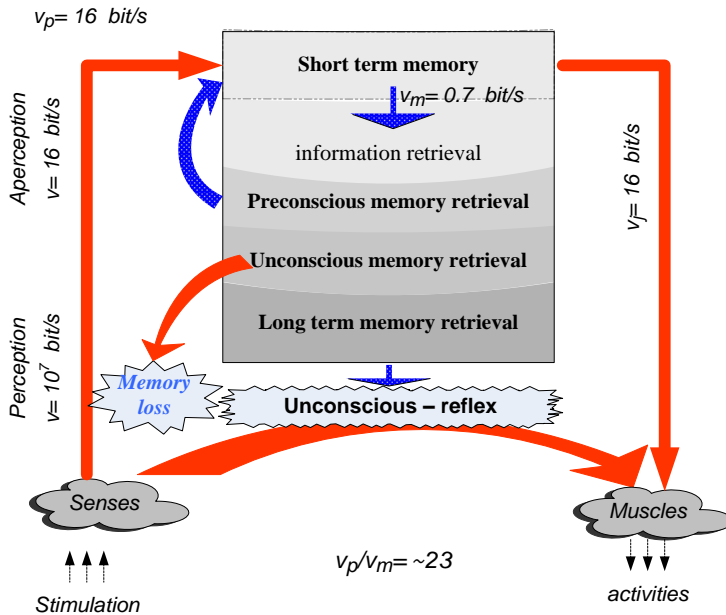
Although cognitive neuroscience research provides new scientific information regarding the information flow in nervous system and how can human's ability of information process be enhanced with the help of technology, this paper relies on research in the field of human information process based on phenomenological model. Researches in this area have been giving us insight of learning process respecting of the limits of information flow, especially focusing on quantification of this flow in human nervous system.

The representation of the quantification of phenomenology model during information process is given on the figure 2. It clearly shows the speed of perception, apperception, memorizing information in short- and long-term memory, and the response to new stimulation and the reflex triggered by unexpected event. The crucial thing is the speed of apperception, which is measured to be 16 bit/s. Yet, the process to store information requires 0.7 bit/s. That simply means we are able to perceive a huge quantity of nervous signals, but we are appercepting much slower. Creating information in long-term memory is even slower. To memorize some phenomena for a longer period of time the acceptance of information has to be adjusted to the ration of speed, which is



approximately 23. And this is equal to the time when we are writing words down on paper.

**Figure 2: quantification of phenomenology model**



## **FROM UNDERSTANDING TO KNOWLEDGE**

From the previous explanation of human information process quantification stems an idea how to teach students in the field of information science.

Accordingly, teachers are challenged with new generations born and form under the influence of advanced technologies and communication. Their values in life and attitude toward learning have already been mentioned in the introduction of this paper. The question that naturally arises from previous elucidation: how to crash down student's black box thinking? How to transform this black box to become white?

First of all students attitude has to be changed through development of learning habits. Learning is always difficult. It is time consuming, requires hard work, commitment and persistence. The key word is comprehension. If we want to acquire knowledge we have to understand things. Understanding process is mental activity with lots of frustration. However, this requires solid background for knowledge. Then again, adequate knowledge is a base for further information growth. And this is a cycle which is going on when we are learning.

But, if we want to be skilled in crafts, art or technical field we have to memorize things in unconscious mind. Then we could act reflexively. Once in a while, we all have experienced some unexpected event. We were not thinking at that moment, we merely reacted. The reaction was involuntarily, automatic. Thus, when it comes to skills, the emphasis should be on unconscious mind.

So far the significance of learning process based on human consciousness and unconsciousness has been highlighted.

Now, let see how it could be implemented in higher education.

Good examples are students, who are attending classes of information science and have all the mentioned features of modern generation. In this particular case a course on relational database is considered, even though it could be applied to any computer course (or any other subject), which includes theoretical knowledge (by giving lectures) and practical knowledge (by working on computers).

**Lectures are mixed:** The lessons start with explanation of theory which concerns specific matters. The theory is implemented in real problems in business world. These examples give them clearer pictures why they have to acquire theoretical knowledge. Besides, systematic thinking is an imperative to information system design, whether it is for business or for any other system. So, important skills in information science are:

- holistic perception and systematic thinking,
- analytical thinking,
- creative problem solving capability,
- good programming skills,

If we want to educate students with good job qualifications these skills are desirable, yet they have to be built on theoretical knowledge.

Therefore, lessons are combination of theory knowledge and examples of everyday life. This way it is more interesting, so their attention has been caught for longer period of time.

But to give an insight in this approach first we should analyze the relations between human brain memory and attention when professors/teachers giving lectures.

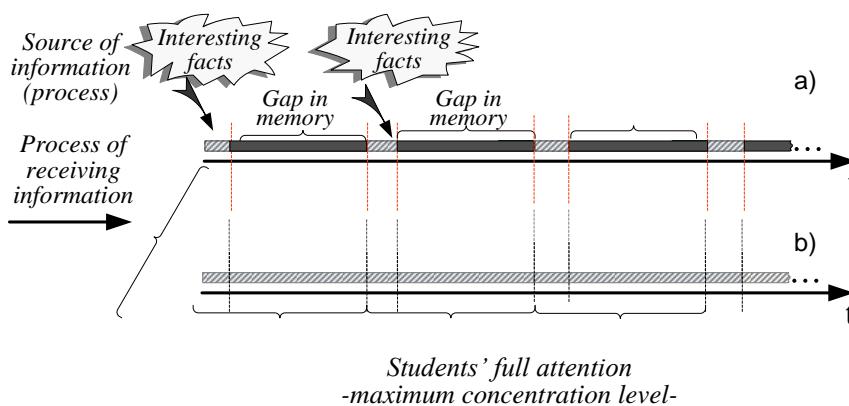
Naturally, these lectures are based on a model of global thinking with regards to learning. This model opens the door to the detailed knowledge of the process that occurs between professors/teachers and students/pupils during the class. More precisely, this process is present between the source and the reception of information, especially when key problems have to be put down on paper.

From the aspect of communication, in the process of information transmission the professor/teacher represents the information source. The students are the receiver, hence the information is meant for them. To analyze the timeline of this process, let's see the graphical presentation on figure 3. The duration of lesson is labeled with  $t$ .

Suppose we have an ideal situation (Figure 3-b). Professor/teacher has undivided attention of students all the time during the lecture. It means that students' concentration level is constantly high.

However, in real life the situation is completely different. It would be nice if professor/teachers could maintain the maximum concentration level all the time. But we all know how difficult is to focus on some subject. So, attention level fluctuates during the time. The duration of human's attention depends on several things: Do we take a lot of interest in the specific matter? Is there any interruption from the outside world? Are we tired or we have some private or any other kind of problem? Apart from the above things, it is necessary to consider situation when students are taking notes in class.

**Figure3:** Graphical presentation of students' attention in ideal situation of information receiving



Let's analyze what happens when the teacher begins his lecture. In the beginning of the class most of the students have high concentration, because the teacher is presenting some interesting facts or explaining exciting phenomena considering the material, he managed to grip students' full attention. In order to make notes their attention is diverted. They are focusing on writing. Thus, they do not hear anything what teacher says. Due to the fact that we can process only a piece of information at the time, the result is a gap in memory. Size of memory gap is different from student to student. It depends on the ability how a person is able to memorize information. As soon as a phrase or a sentence is written down the student could pay attention again to the lecture. And this process is repeated constantly during the class.

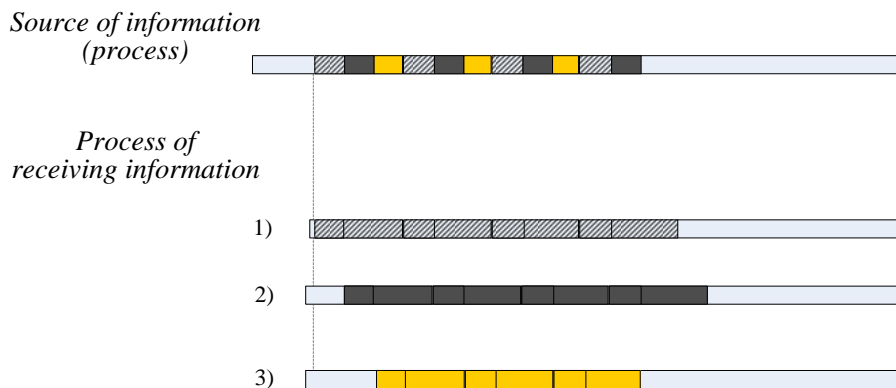
But this is much worse if we take into consideration that classes are organized for a group of students. Beside mentioned things which could distract individual's attention, professionals in education should take into account the differentness of human beings. We are all individuals with different mental models and different

interest. What is interesting for one student does not mean that will be interesting for the others. Therefore, different student will experience different memory gaps.

Figure 4 shows the ongoing process of information between the source and the receiver, when teacher gives lecture to a group of student. In order to illustrate differences between students' mental model and their memory gaps, only three students (receivers) have been considered. Due to this differentiation in memory gaps, all the students who are attending the class differently understand the teacher. They develop in their mind their own "story". The stories are significantly different but with compliance of students' mental model. Thus, if the teacher (the source of information) wants to be successful he has to deal with several problems, such as:

1. How to connect the registered parts, to form a global, comprehensive picture.
2. How to register new concepts, terms and important parts of material.
3. How to correctly connect the newly acquired knowledge (synthesis), upon which further knowledge could be built.
4. And in the case when teachers give lectures to group of students, problem listed before as [1], should be considered on group level. This means that their knowledge should be equalized, i.e. these discrepancies in "stories" should be diminished as much as possible

**Figure 4:** Process with a group of student - discrepancy in student's mental model formed during the lecture.



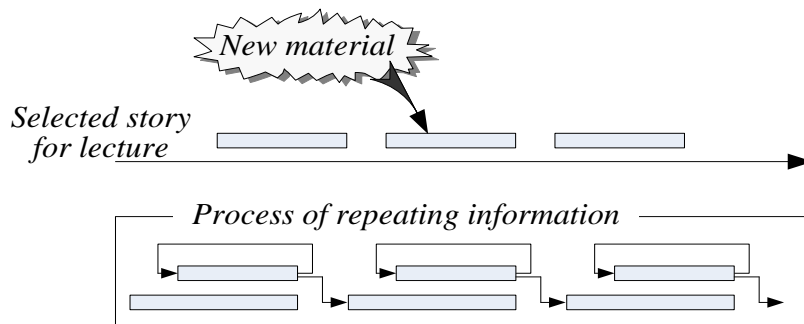
**1. Solving the problem of connection of the registered parts to form a global, comprehensive picture.**

When new material is exposed to students, it is desirable to be included in some interesting story. Taking examples from lectures on database design, students are interested how real organizations implement information systems to their business. When it is possible an interesting anecdote is added to the whole story. But sometimes, the explanation should be based on a well known story as the material has to be accustomed to students' comprehension (Figure 5). The story should be selected according to the model and the structure of the material. So the

familiarity plays a key role in understanding new concepts. Although the entire process of theory explanation is done with the help of computer presentation, the essential thing is the practical demonstration of exposed material. The main aim of this stage is to create a complete picture in students' mind.

In addition, this process includes arrays of cycles lecture. To "fill in" the memory gaps teacher returns from time to time on important issue. He repeats what he was talking about before. And if it is possible he should repeat his explanation always from slightly different angles.

**Figure 5:** The process of representing lecture material



## **2. Solution for registering new concepts, terms and important parts of material**

- It is very useful to write terms on the blackboard. If the terms are new, they should be explained thoroughly. In addition, if it is possible the explanation should be combined with sketches, graphs or drawings.
- In the case of complex material it is necessary to define whether it is about:
  - objects,
  - properties/characteristics,
  - behaviors or
  - structures.
- Besides, in the case of complex material, teacher should use system models to describe it.

*(It is recommended that students make notes about these models)*

## **3. Solution for correct connection of newly acquired knowledge (synthesis), upon which further knowledge could be built.**

The solution is training students for synthesis. The question is: how could they come from set of parts to the whole? To achieve this there are certain methods and certain models of synthesis. The first step of solving this problem could be found in the part [1], where connection of the registered fragments in order to form a global, comprehensive picture is explained.

The results of scientific researches certain conclusion has been made:

- Students, who used methods of mind mapping while they were learning, on the exam have weaker result, comparing with those who did not use any specific models.
- On the other hand, students who used structure models, where categories are clearly specified, have much better exam results.
- But students who applied system models in their learning have excellent result not only in synthesis of material, but also in creating ideas and new information.

#### ***4. Creating comprehensive picture on the group level***

In giving lectures to a group of students, it is necessary that their knowledge would be on the same level. It is essential to find out what is unclear to each student

The thing is that students have different mental models and different moments of attention. Therefore it is important to prepare problem oriented questions or exercises from the material of lecture.

When they are solving a problem or doing any exercise, they always have some questions. From these questions the teacher could see what they do not understand, so he could intervene to fill the gap in their knowledge.

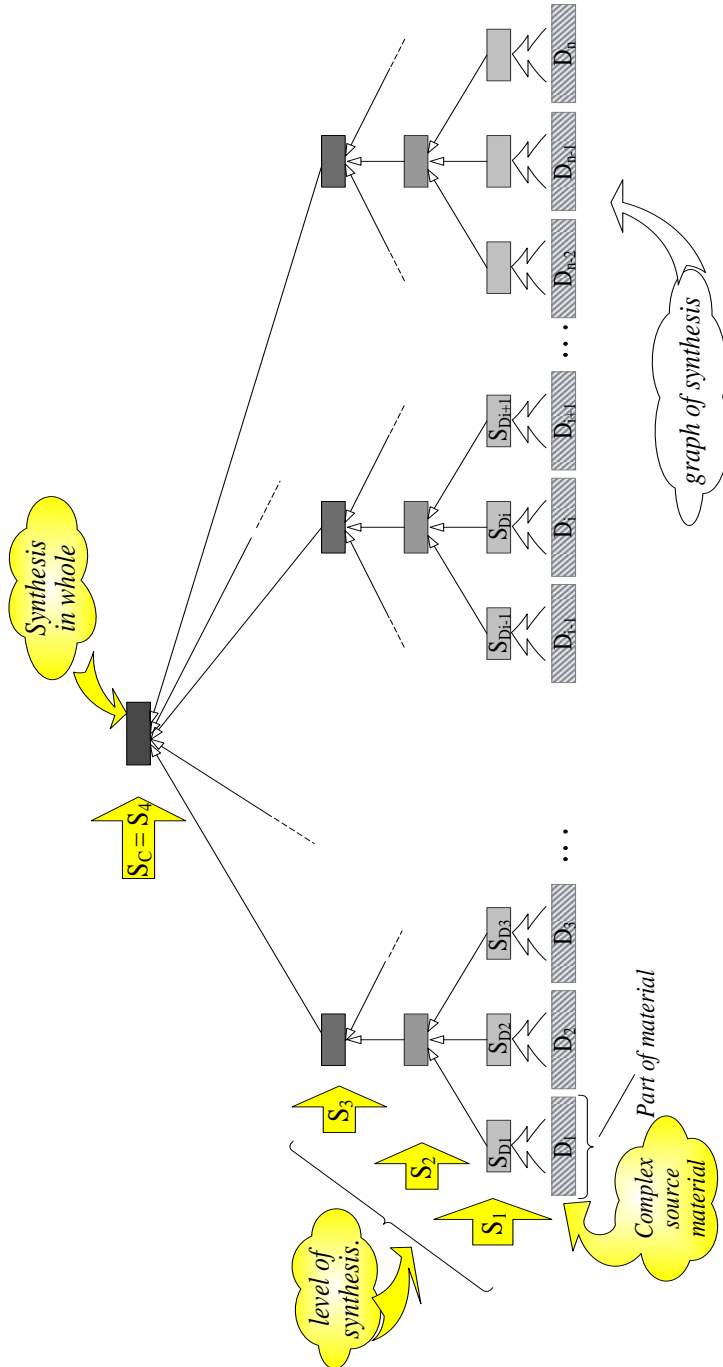
Now, let's see an example of the method of synthesis. A graphical presentation shown on figure 6 will be useful for explanation.

The complex source material of lecture is divided into smaller parts. These small parts can be seen at once, and each of them in some way makes a certain whole ( $D_1, D_2, \dots, D_i, \dots, D_n$ ). All of these parts are investigated respectively and their essential properties, structures and behaviors are selected. Upon these investigations, abstracts are created, which represent the first level of synthesis (S1). Then this procedure is repeated with the abstracts, creating higher level of abstraction. This continues until these abstracts are synthesized into a whole. The result of described process is a hierarchical structure of abstracts, which represents the complex source material at different levels of abstraction and synthesis. This whole hierarchical structure is actually a "graph of synthesis" (Figure 6). Elements of the graph and the relationship between them are essential to generate a global picture of the complex material. Knowledge acquired by this process provides assets for efficient handling of the material in any case – at the level of components as well as at the level of the whole.

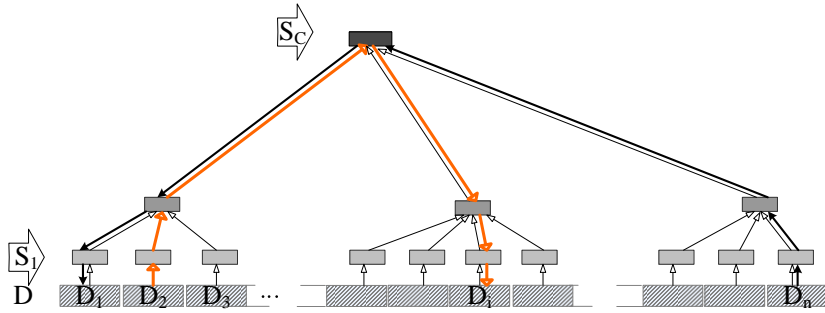
Further more, this enables the creation of new knowledge by linking some parts of the original materials and by investigating their relationships. If for example an important relation exists between parts  $D_2$  and  $D_i$  (Figure 7), then graph of synthesis gives the possibility to connect these parts and to identify abstracts on the path from part  $D_2$  to part  $D_i$ .

Using system models in creating abstract of the complex material could be very useful and efficient, because it allows identifying what is the structure of phenomena and how it behaves.

Figure 6: Graph of synthesis



**Figure 7: Graph of relations and creation of new information**



Scientific investigation  
of relations:

$$\frac{D_2 \text{ and } D_i}{D_n \text{ and } D_1}$$

← *Creating new information, which is not in sources material*



## ***CONCLUSION***

A single day could not pass without stumbling on some phrase like: “We live in knowledge society”, “Future society requires long life learning”. “Knowledge worker” as Peter Drucker defined today and future generation has to be focused on education. But, somehow we have forgotten the learning part. We have jumped on the bandwagon of technology expecting that it would solve all our problems. Well, in some case it has, but we could not and should not rely just on technology.

We need knowledge worker on the job market. That is why we need to teach these future generations how to learn.

The aim of this paper is to emphasize student activity in class in acquiring new knowledge. In our world we need to equip students with skills, but without neglecting theoretical knowledge. The main issue here is development of cognitive skills and problem-solving thinking. Therefore the paper brings forward an approach based on system thinking development. It should be noted, that this paper emphasizes that students have to be dedicated to what they learn.

Solving problems on their own students completely employ their little gray cells. Their brain is under higher pressure, which implies to higher memory activity. The aim is to understand the material, and this process requires several levels of synthesis.

The presented approach has focused on situation where students are eager to learn. But we rarely have this situation in real life. We mostly deal with a reckless generation, whose attention is very hard to catch. Thanks to affordable technologies we could be creative, and make them to be interested even more during the lesson. Beside explained teaching method, when some small group students are involved, practical work is implemented. **Once they are familiar with the theory, they could prove it on computer. In this way, not only their knowledge grows, but also their skills are developed effectively.**

This approach combined with practical use of computer is possible only because contemporary universities, striving to live up to digital world, and have computerized classrooms. Unfortunately, it could be done only with smaller groups, although the approach based on system model is adequate for any size of groups.

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# **ENVIRONMENTAL EDUCATION THROUGH EPA TRAINING ANALYSIS**

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## **Abstract**

*Environmental education represents a new scientific discipline, which in its essence determines the social dimension of environmental issues. Its emphasis is on continuous education in the field of environmental protection, and its actions are basically represented by the elements of sustainable development. The first concept of environmental education in America was created through the implementation of various environmental trainings. The most important training centers worldwide which conduct environmental education are: EPA (Environmental Protection Agency), NETCSC (The National Environmental Training Center for Small Communities), ETC (Environmental training center), IUCN (International Union for the Conservation of Nature and Natural Resources), Giraffe Center and others. The goal of these centres is to create and accept the idea of environmental awareness through clearly defined goals of ecological education, as well as the acceptance of the concept of sustainable development in all socio-economic levels, and society as a whole. Today, given the increasing pollution of ecosystems by emissions of harmful substances, as well as the significant reduction of non-renewable natural resources, the degradation of renewable resources and insufficient use of ubiquitous resources, environmental education should be a fundamental basis of the education of all communities, regardless of whether it is a high-income, developing or underdeveloped country.*

**Key words:** *environmental education, EPA, educational training, ecology, education*

## ***INTRODUCTION***

Environmental awareness is based on new knowledge, attitudes, values, opinions and behaviors. Environmental behavior is an essential element of environmental awareness, since it is not based only on certain personal and collective ecological knowledge, but also on the specific action of actors which seeks improvement ie. solution of environmental problems.

Beside environmental awareness, the environmental behaviour is also affected by economic, biological, social and other human needs. The intention of the political, economic and ecological strategies of the society is to promote the desired ecological behavior. The formation of desirable environmental behavior is an important job because of the existence and influence of various objective and subjective factors.

The objective factors include: the state of the environment with regard to the degree of the ecosystem degradation, social and environmental infrastructure, the level of technical and technological development of specific regions, subjects of environmental movements, political parties, sciences, and others. Individual and social values by which and individual shapes his behaviour, political beliefs, ideological and religious beliefs, opinions, estimates, expectations and other fall into subjective factors.

Evaluation of the environmental situation is determined by the value system of society or social group in which the ecological concern arises and is produced. The primary element of environmental awareness is the environmental knowledge. It is a necessary prerequisite for the formation of environmental awareness and a base for the evaluation of environmental hazard. It is about knowledge concerning the relationship between man and nature, which speaks about the causes and nature of the ecological crisis, and the possibility of getting out of it.

Environmental education (EE) as a special area did not show up until the late 1960s. It traces its roots to the early 20th century since the appearance of three educational movements whose influence can still be felt today - the study of nature, the conservation of education and the outdoor education. Their influence in the field of ecology can be seen in outdoor classrooms and experiments in the wilderness that are often components of today's ecological curriculum. The above mentioned scientific disciplines are prerequisites to a much wider scope of science, which is environmental education (EE).

Today, ecological education is a discipline which places special emphasis on the social dimension of environmental problem. The focus is on creating and building a population that possesses consciousness, behavior, knowledge, skills and motivation needed to solve environmental issues, all in accordance with the creation and preservation of environmental awareness, and also to build the model of sustainable development, through specific environmental actions.

EE relies on critical thinking, constructive problem solving and effective decision-making skills and teaches individuals to approach the environmental problem from several directions in order to bring the right decision.

Since its formation in 1970s, EPA (Environmental Protection Agency) has been addressing environmental education and training, but this area has gained importance only after the introduction of the National Environmental Education Act of 1990. The aforementioned act has provided for the establishment of environmental education and the formation of a national environmental EPA program.

Beside offices in Washington, D.C., EPA offices are organized in 10 regions:

Region 1 – Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont

Region 2 – New Jersey, New York, Puerto Rico, Virgin Islands

Region 3 – Delaware, Washington D.C., Maryland, Pennsylvania, Virginia, West Virginia

Region 4 – Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee

Region 5 – Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin

Region 6 – Arkansas, Louisiana, New Mexico, Oklahoma, Texas

Region 7 – Iowa, Kansas, Missouri, Nebraska

Region 8 – Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming

Region 9 – Arizona, California, Hawaii, Nevada, American Samoa, Guam, Northern Mariana Islands, Palau

Region 10 – Alaska, Idaho, Oregon, Washington.

## ***EPA ECOLOGICAL TRAINING***

The primary mission of the EPA's environmental program is to ensure that environmental education becomes a recognized and properly used tool for the protection of human health and the environment as a function of the whole of humanity, that is all human communities. Each of the 10 EPA regions, including the headquarters in Washington, has its own environmental education programs and coordinators. EPA is also working with a large number of state-owned and private companies. Some of them are: Environmental Advisory Board, Federal Task Force on Environmental Education, National Environmental Education Advisory Council, National Environmental Education and Training.

Depending on the annual budget, the EPA provides between two and three million dollars a year for the projects of environmental education. Factors that are considered in the selection of environmental education projects are:

- ponderability of results
- potential for the project evaluation and improvement
- environmental or educational importance of the project
- cost efficiency
- partnerships and possibility of cooperation
- geographical distribution of obtained resources

### ***Creating Training (Education Program) for EE***

EPA has made, in collaboration with the North American Association for Environmental Education, the recommendations that may be helpful in designing of the ecological training.

The above mentioned suggestions can be grouped as follows:

- Goals
- The level of presentation
- Measurability of goals
- Materials
- Time
- Additional information and instructions
- Procedure
- Evaluation
- Training continuity

The goal should be a general statement about the plan of education and what is planned to be achieved with it. It is easiest to define the goal as a statement about what the participants will actually learn from this training.

It is necessary to know the participants, i.e. their knowledge, level of education etc., in order to adjust the matter that is to be presented, so that it would be easier for participants to accept.

Specific, measurable learning results are needed.

It is necessary to prepare all the equipment and materials in sufficient quantities for the successful implementation of the training.

You need to pay attention to the time and to separate a reasonable amount of time for classes. It should not take too long, nor too short, the optimal time being about 45 minutes.

Pay attention to the information that a person in charge of the training will certainly have. This information may concern ways of participating in the training, the course of training itself, the matter that will be studied and so on. It is recommended that this information is available in printed form and be submitted to the teacher on time.

The procedure applies to a specific lesson plan, that is the way in which the training will take place. Creating a specific timetable of steps to be taken allows effective implementation of the training. You should be precise and clear about which activity is planned and when.

Evaluation should be directly related to the objectives of the training. Evaluation can be done by test or oral examination. Some exercises may also be organized from which one could infer what the students have learnt.

The training plan should be linked to national standards, that is practice and ways of teaching. The more these standards are met, the more acceptable the training program will be to the participants.

There could be additional activities to access upon the successful completion of the training, for example the additional training or exercises that the participants could carry themselves.

## ***Environmental Training and Education Organisations***

Regardless of the budget for projects, EPA is funding environmental organizations such as NETCSC and ETC.

NETCSC (The National Environmental Training Center for Small Communities) is an organization funded by the EPA which provides small communities with training materials, information and services related to drinking water and wastewater.

With its commitment, this organization strives, with the assistance of technical personnel, lecturers, operational staff, regulatory officials, consultants in the field of ecology and other, to improve people's health and make the usage of the facilities for water supply in their communities more efficient.

ETC (Environmental training center) is located in Technical and Community College in Delaware, and its goal is to provide the appropriate training program in the premises of the college as well as the technical support "in the field" to the environmental workers of Delaware.

Classroom training consists of training for companies engaged in digging wells and companies that work with drinking and waste water. This training serves as a preparation for successfully obtaining a specific license for dealing with these

matters. When a company gets a license, that is a license to engage in such activities, the above mentioned center becomes available for additional training.

As for support "in the field", the center also has a qualified staff. Their primary function is to help businesses and the community to be in compliance with the National Pollution Discharge Elimination System (NPDES). Technicians are trained to provide initial diagnostic assessment of the facilities and then according to the scanned state to develop a plan of action. This service is free for most of the facilities in the State of Delaware. This service is paid only by private facilities.

In addition to these, there are other environmental organizations that are involved in other areas of environmental education. One of them is The Giraffe Center.

The Giraffe Centre, which is located 18 kilometers from Nairobi, is an educational center that is home to a rare and endangered Rothschild giraffe. A successful breeding program was started in this center in 1975. Today there are 330 giraffes in the wild, while in 1975 when the first giraffe was brought, there were only 130 of them. Currently, the center has 10 giraffes.

Part of the centre that serves for education was built in 1983. Children from the local community can come free of charge in order to learn about the importance of wildlife and environment preservation. When the center started working there came about 830 children of school age, while in 2005 there were over 62,000 who passed through the program of fun giraffe feeding, listening to lectures about environmental preservation and watching movies about the life of wild animals.

But, despite this program, it became clear that the children, since they have spent only a few hours at the center, do not receive a sufficient amount of knowledge about the issues and that is where the idea about the education of teachers who teach in their schools about these issues came from.

In 2001, the programs for the education of teachers were developed and they lasted three to four days and provided teachers with enough knowledge about environmental problems. These applied skills and knowledge teachers could further convey to their students through the curriculum. To date, above 600 teachers from schools from all over Kenya went through this program. The plan is to expand the program to the neighboring countries.

IUCN (International Union for Conservation of Nature), was founded in 1948 and its job is to connect the states, state agencies and a wide range of non-governmental organizations, thus creating a unique partnership for sustainable development. Union seeks to influence, encourage and assist global societies to conserve the diversity of nature and to ensure that resources are used in an efficient and sustainable manner.

Within this Union there is a Commission for Education and Communication. It is a global network of volunteers who are experts in the field of environmental communication and education, and who are mostly employed in various non-governmental organizations, national and international organizations and academic institutions.



The Commission is a major proponent of the importance of integrating communication and education in environmental projects and programs. It promotes the strategic use of communication as a tool for their policies and thus makes the opportunity for better planning and use of education and communication as a goal of Union's mission. To the Commission, communication and education are means to a construction of environmental awareness.

### ***Research terms at the EPA***

The Environmental Protection Agency (EPA) uses a particular nomenclature to describe its research, including the terms core research and problem-driven research. Those terms were coined by a National Research Council committee that recommended “that EPA’s research program maintain a balance between problem-driven research, targeted at understanding and solving particular identified environmental problems and reducing the uncertainties associated with them, and core research, which aims to provide broader, more generic information to help improve understanding relevant to environmental problems for the present and the future” (NRC 1997).

EPA is primarily a regulatory agency charged with developing regulations that broadly affects human health and the environment, but its regulatory actions are intended to be based on the best possible scientific knowledge as developed both within and outside the agency. Like any other agency, EPA cannot generate all the research it needs, but several previous National Research Council reports have underscored the importance of maintaining an active and credible program of internal research.

A 1992. EPA report also states that science is one of the soundest investments the nation can make for the future. Strong science provides the foundation for credible environmental decision making. With a better understanding of environmental risks to people and ecosystems, EPA can target the hazards that pose the greatest risks, anticipate environmental problems before they reach a critical level, and develop strategies that use the nation’s, and the world’s, environmental protection.

EPA’s process is described in its strategic plan. EPA drew up its first strategic plan in 1996. That plan, which has been renewed every 3 years, stated that “the mission of the U.S. Environmental Protection Agency is to protect human health and to safeguard the natural environment—air, water, and land—upon which life depends”.

The current strategic plan (2006-2011) has five principal goals, all of which have scientific underpinnings: clean air and addressing global climate change,

clean and safe water, land preservation and restoration, healthy communities and ecosystems, compliance and environmental stewardship.

The plan also lists three “cross-goal strategies” that describe values meant to guide planning for all five goals: results and accountability, innovation and collaboration, and best available science.

The results of EPA research are used both by the agency itself and by various others outside the agency. The explicit purpose of both ORD (Office of Research and Development) research and extramural research is to provide scientific bases of EPA actions. The research may lead to end outcomes when results are integrated, assessed, and given regulatory or otherwise practical shape through actions in or outside EPA.

Another important goal of EPA’s work, however, is to provide knowledge outputs for diverse organizations that have environmental interests and responsibilities, such as state and local governments, nongovernment organizations, international organizations, and community groups. Such entities interpret and use ORD outputs for their own planning and regulatory purposes.

### ***A Model for Evaluating Research and Development Programs***

The following is a sample of the kinds of activities that might be categorized as outputs, intermediate outcomes, and ultimate outcomes:

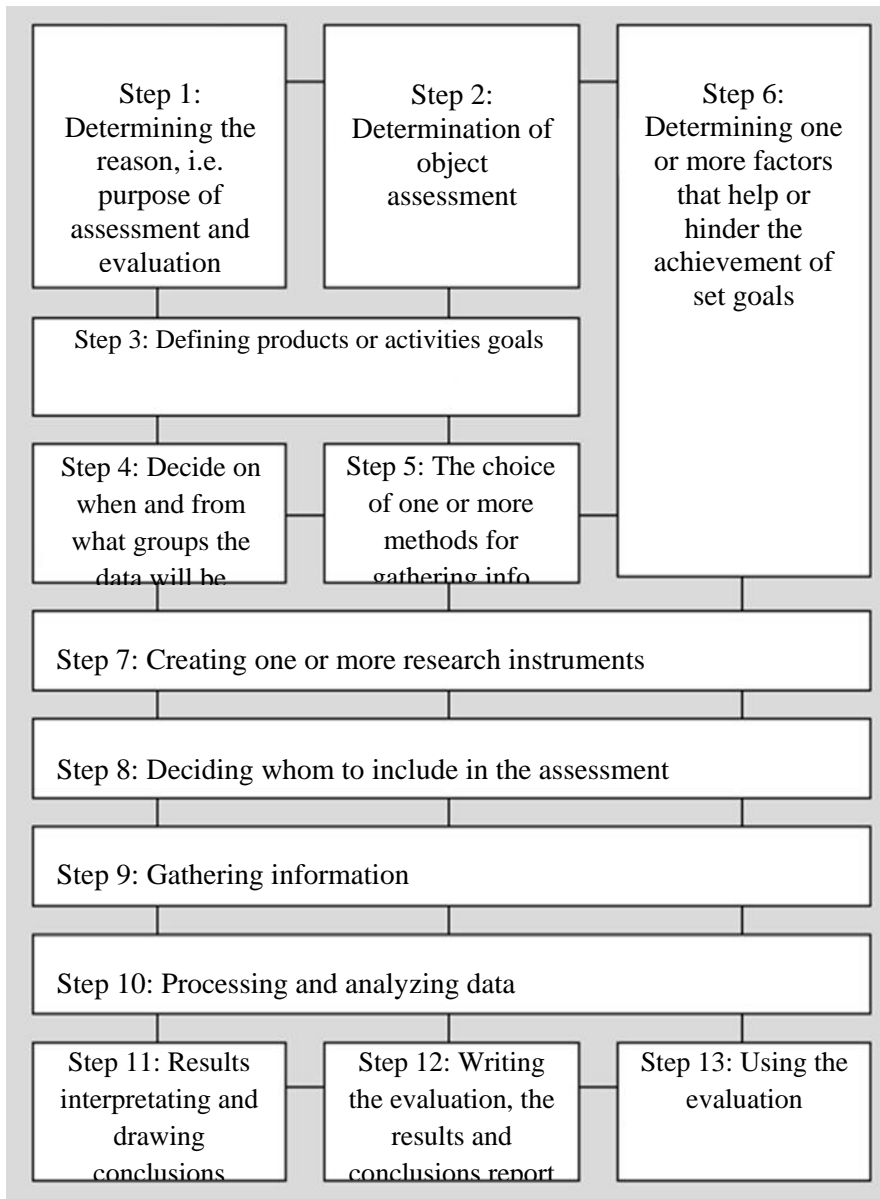
1. Outputs include peer-reviewed publications, databases, tools, and methods.
2. Intermediate outcomes include an improved body of knowledge available for decision-making, integrated science assessments (previously called criteria documents), and the dissemination of newly developed tools and models.
3. Ultimate outcomes include improved air or water quality, reduced exposure to hazards, restoration of wetland habitats, cleanup of contaminated sediments, and demonstrable improvements in human health.

Those steps can be described in different terms, depending on the agency using them and the scope of the research involved. For the Environmental Protection Agency (EPA) Office of Research and Development (ORD), for example, results that might fit the category of intermediate outcome might be: the provision of a body of knowledge that can be used by EPA’s customers and the use of that knowledge in planning, management, framing of environmental regulations, and other activities. Intermediate outcomes are bounded on one side by outputs (such as toxicology studies, reports of all kinds, models, and monitoring activities) and on the other side by ultimate outcomes (such as protection and improvement of human health and ecosystems).

## ***Evaluation and Assessment of Ecological Education***

IUCN has developed a 13 step method for the assessment and evaluation of environmental education (Graph. 1).

***Graph no. 1 - a display of 13 steps of environmental education assessment***



### Step 1: Determining the reason, i.e. purpose of assessment and evaluation

Before proceeding to estimate, it is important to determine why the general assessment i.e. evaluation is conducted. The reasons for conducting evaluations can be:

- As a report to funders
- To provide information to participants
- In order to monitor the quality
- In order to improve the quality

### Step 2: Determination of object assessment

When the purpose of assessment is defined what will be evaluated should be specified exactly. Possible objects of the assessment are:

- The functioning of the parts of organization
- The market position of the organization
- The quality of the product and service and the interest for the current product or service in general
- Products for specific target groups
- Services for specific target groups

Determining the object of evaluation can be quite challenging especially if you are working with a number of different target groups.

### Step 3: Defining products or activities goals

One should make a distinction between product assessment and activities assessment, i.e. the difference between the evaluation of products and activities.

Evaluation of products - If the organization has joined the product development it must have had specific goals that it had planned to meet. Generally these goals can be:

- Positive acceptance of the product
- Goal of the product being used
- Goal of the product being effective and achieving the desired results

Evaluation of activity - goals of educational activities can be categorized as follows:

- Process objectives: setting the program (EE) and the program itself to be achieved, the number of participants, the quality of implementation, satisfaction of participants
- Objectives of the effects to be achieved: knowledge, skills, etc. that need to be achieved in the target group.

### Step 4: Decide on when and from what groups the data will be collected

The selection of groups - For each group which was previously determined and composed the data should be collected and processed separately in order to get precise information.

Timing for the collection of information - when evaluating it is important to determine the exact moment in which to access the collection of pieces of information. Usually, this is immediately after the end of classes, but it is sometimes important to check whether the students still have the knowledge and skills after a certain period of time, so that in this case the test is performed only after a specified period.

Step 5: The choice of one or more methods for gathering information

When the evaluation of acquired knowledge, i.e. gathering of information about the acquired knowledge is approached, one or more methods are used. Methods that can be used are:

- A written questionnaire
- A skills test
- A knowledge test
- An interview
- Observation

Step 6: Determining one or more factors that help or hinder the achievement of set goals

With a particular activity, achievement of certain goals is attempted. For the achievement of these goals, the activity would have to have certain characteristics that are necessary for achieving the desired effects. Those characteristics can be divided into four groups:

- Features of the product or activity design
- The way in which the product is used and activity conducted
- The characteristics of product users or participants in activities
- The circumstances under which the product is used or activity conducted

Step 7: Creating one or more research instruments

In step five, the research instrument was chosen. But despite the fact that it was chosen in that step, the fulfilling of the operational part remains, i.e. the questionnaire and the interview must be made, and the skills test must be planned.

Step 8: Deciding whom to include in the assessment

In step four, the group from which the data will be collected was chosen, but as these groups may consist of a large number of participants, it is sometimes easier to collect information on a smaller sample. One should take into account two considerations:

- What are the advantages of taking a sample of small groups, and what are the disadvantages, and, also, what are the advantages and disadvantages of taking a sample of the entire group?
- How will the sample be chosen and what must the size of it be in order for it to be representative and accurate enough?

### Step 9: Gathering information

Four groups of research instruments may be distinguished:

- Instruments in written form that are personally delivered to people who need to fill them
- Instruments in written form that are sent to people who need to fill them
- Interviews and observations
- Work with assessors

For instruments that are in written form and are personally delivered, there is no complicated organization needed. There must be a sufficient number of copies, then brief instructions, space and time for the meeting.

To instruments in written form that are mailed a certain number of people does not respond, which is a disadvantage of these instruments.

In order to carry out interviews and observations hiring additional people is needed. Items for consideration in this case are:

- How many people need to be employed in order to effectively conduct the interview and observation
- To provide the necessary information and instructions to people who conduct interviews and observation and, if necessary, a training
- To arrange meetings with people who need to be participants in the interviews and observations
- To have a plan for unpredictable situations, for example, if the examiner is unable to come
- Checking completeness of interviews and observations

### Step 10: Processing and analyzing data

For processing and analyzing the data different methods can be used, since today there are software tools that can be helpful in carrying out methodological activities. It is desirable to make a plan for the analysis, based on the type of the obtained data. It is necessary to comply with any of the following types of procedures:

- Summarizing qualitative data in the form of a text. The answers to open-ended questions should be summarized in the most acceptable way.
- The categorisation of responses to open-ended questions.
- In a further analysis of quantitative data the first step is the analysis of results for each question in each category. The results are expressed in percentages.
- In some cases, comparisons can be made between the groups in order to obtain certain information. With the help of statistical software through the application of well-established measures of central tendency and dispersion, comparisons between groups are made and causal connection is sought.

### Step 11: Results interpreting and drawing conclusions

At the end of each research project the question of what is learned is raised. For example, are the data sufficiently reliable and valid? The value of the collected data depends directly on the quality of the research and the instruments used for research. There is also the question of how significant the discovered differences and connections are. The three aspects play a key role in assessing the differences, i.e. the connections:

- What is the intensity of the discovered connection, i.e. difference?
- Is there a statistical significance?

The next thing to consider is whether the result leads to a real change or effect. To the question of whether there are any real changes the only answer can be the assessment of the quality of the instrument used. Only if they are sufficiently reliable and valid, the differences between the two measurements can be taken as relevant. For example, in formulating questions this can come to the fore. If the question is not well formulated, the participants may interpret it differently and the result will not be authoritative. The most important thing is not to be backfilled with the excessive amount of data, but still have enough of them.

### Step 12: Writing the evaluation, the results and conclusions report

In principle, the research report should be all-inclusive. This is not easy to do, because it is necessary that the report is readable and the study of it must not take long. The goal is to create a good relationship between the amount of information in the report and the quality of information. It is necessary that the reader of the report to be able to infer where the conclusions are obtained from, then that they are understandably presented and that report is not of an excessive volume.

### Step 13: Using the evaluation

In order to effectively use the evaluation, it is necessary to:

- Ensure that the research project is well accepted in the organization
- Believe in the quality of the research
- Not overestimate the reliability of the data from the research
- Finish the research report on time, and finish it properly and in compliance with the requirements of the report

## ***CONCLUSION***

In the conclusion the emphasis can be put on the environmental education for the conservation and improvement of the environment and therefore improvement of the quality of life.

The aim of such a design of ethical-environmental education is the promotion of new values and the qualitatively different work culture, i.e. the development of professional practice that is responsible for the environment.

Education for environmental protection should allow redefining of man's relationship with nature and the change in his behaviour, and the basic requirement is a respect for the principles of nature.

As previously stated, the environmental education refers to organized efforts on the education of the general public about how the environment functions, so that people would control their behavior and live in accordance with the principles of sustainable development.

The term EE is often used as a synonym for education within the school system. However, sometimes it is used in a global sense in order to present all the efforts of educating the public. These efforts may include a variety of printed materials, websites, media campaigns, outdoor education, learning through experience, etc.

Environmental education is best defined as a learning process that increases people's awareness and knowledge about the environment and the changes that are happening, it develops the necessary skills and knowledge to confront the challenges and encourages manners, and also motivates and sets obligations for making decisions in order to preserve the environment.

From the above, it can be concluded that environmental education has a key role, because it encourages responsible behavior which is necessary for the preservation and improvement of the environment, that is, encouraging sustainable development.

Education for the environmental protection, as it is written in the Chapter 36 of Agenda 21 (Programme of measures and activities for the 21<sup>st</sup> century), is in the function of actualizing the sustainable development, and is therefore necessary for all the Earth's inhabitants and must represent a long-term planned development of an interdisciplinary knowledge about the environment during the entire life span of a man.

The objective is to develop awareness of the basic characteristics of the environment, the relations within it and to it, as a precondition of man's pursuit of its conservation and enhancement, for present and future generations. That is why it is, in fact, necessary to provide for the interdisciplinary and multidisciplinary knowledge through the educational process, for the sake of knowing the essence of relations: society, man, technology, environment, that is to express the integrity of aspects of environmental, economic, social, technological, cultural and aesthetic content.



Education for the environment protection, that is education for sustainable development:

- should include all levels of education, from preschool through elementary and vocational to the university, post-graduate and permanent. It is necessary to introduce environmental education in all forms of teaching in the school.
- needs to be implemented in working organizations through professional training of workers in certain workplaces, in order to reduce the possibility of damaging the environment in the work process.
- needs to be directed to a positive and active attitude (not just passive protection), the training of citizens for the planned development of environment with all its resources and man-made creations.
- should be exposed in all subjects where possible, through knowledge and understanding of the environment.
- is desirable to be presented comprehensibly in subjects, while emphasizing the historical or developmental approach. It is greatly important to understand the elements of man's destructive activities, the limitation of fuel with a special reference to fossil fuels, mineral wealth and land, and to recognize specific consequences that man in his activities causes on both local and global scale.

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## **THE PROBLEM OF CORRUPTION IN THE EDUCATIONAL SYSTEM IN SERBIA**

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### **Abstract**

*In countries that have recently undergone or are in the final stages of the transition issue of corruption almost always takes the first place in the list of social problems. In Serbia corruption has a systemic character, it swept all public services and citizens have embraced corrupt behavior as a form of socially acceptable behavior. Among the social spheres that are considered permeated by corruption in Serbia rather high place in the perception of corruption stands, unfortunately, the field of education. Many factors in this area are influencing in the rapid spread of corruption: low salaries of teachers, the lack of high professional and moral criteria for teachers, matching the interests of those who are corrupted and corrupt, and the fact that this kind of corruption is usually done behind the closed doors and tête-à-tête, which makes detecting and proving it difficult. Also, one of the reasons is the lack of interest of the country to be seriously involved in education and its quality. According to this, this paper discusses the problem of corruption in the educational system of Serbia, causes, forms and negative long-term effects caused to the whole society. Attention was paid to the importance of taking a series of measures and reforms in the direction of preventing corruption in this area by all participants of the educational process.*

**Key words:** *corruption, causes, consequences, educational system, Serbia.*

## ***INTRODUCTION***

Corruption is one of those phenomena that are essentially little known, although it is generally thought that this is a simple issue that is known to everyone. However, it is much more complex issue than it might at first seem. There is no doubt that this is a negative phenomenon, immoral, illegal and harmful one. The word corruption originates from the Latin word *corruptio*, which means bribery, blackmail, turpitude, depravity. It is clear that this is something that is bad, harmful, immoral, something that should definitely be avoided. A high degree of social danger, many forms, undercover, adaptability to social changes, cunning perpetrators are just some of the qualities that characterize it.

In addition, corruption can also be seen as a social phenomenon, in the sense that one can speak of systematic corruption of legal systems, ensuring the work of public services and the creation of official policy. Corruption occurs in all aspects of life and activities, from public institutions and politics to the economy and international operations. In those societies where it is tolerated as an acceptable standard of conduct, corruption affects all people, as the consequences of corruptive practice are felt in all social relations that are important to them. So citizens face this phenomenon during their education, employment, treatment, while performing their work activities, etc.

This paper discusses the problem of corruption in education, that is the education system, as education is the foundation for the survival and development of any society. So it shouldn't be surprising that the most famous international NGO organization engaged in the fight against corruption, Transparency International, as part of its long-term program to develop awareness for the fight against corruption started just from the education and science. Namely, the integrity of education is very important because the corrupt schools and universities are hampering progress, prosperity, and cause very dangerous and long-term negative implications for the entire society. Therefore, it is necessary to take all measures to ensure that corruption in this area is prevented.

## ***CONCEPT AND CAUSES OF CORRUPTION***

The notion of corruption is given different meanings depending on the angle from which it is viewed (as a psychological, sociological, economic, criminal, legal phenomenon). Many countries have attempted to define the concept of corruption in national legislatures, as well as in some professional work of their authors and with the help of international organizations. In the broadest sense, corruption is defined as the abuse of public service for private gain. It is a very negative phenomenon that erodes morality of a society through the destruction of its social, economic, political and legal institutions. It destroys human values such as freedom, dignity and rights of a man-citizen and his need to create and apply new skills and products (material and spiritual).

Given that corruption is a serious systemic disorder that threatens the basis for the development of a democratic society, the rule of law and a legal state, it is clear that the concept of corruption should be applied to all areas of human activity, both in the public and private sectors, as well as to all persons who in the discharge of public and private functions gain undue advantage associated with these functions (Tanjevic, 2012). Therefore, in the Law on the Anti-Corruption, corruption is defined as "a relationship based on abuse of office or social position or influence, in the public or private sector, in order to obtain personal benefit or for the benefit of another." In this regard and bearing in mind all the components of the concept of corruption (moral, social, legal, economic, historical), we could say that the basic characteristics of corruption are following:

- Corruption is socially unacceptable and criminal activity with an extremely high degree of social danger and at the same time is illegal and dishonorable action;
- Corruption is a process involving at least two people;
- Corruption usually occurs from the misuse of public power entities that perform them;
- Corruption is a dynamic social phenomenon that adapts to changing social and economic conditions;
- Corruption is always acting with intent;
- Corruption causes a series of social harmful consequences, endangers the functioning of institutions, undermines the principles of democracy, rights and freedoms;
- Corruption occurs in all countries in the social, economic and non-economic areas.

In the literature, during the determination of the causes that lead to corruption, and the factors that cause it, usually several perspectives occur: moralistic, functionalist, legalistic, institutionalist and interest. With a moralistic point of view corruption is seen as a pathological phenomenon, which is generally associated with temptation, so it is believed that the moral are only those who are able to resist the temptation.

Functional point of view believes that corruption is a phenomenon familiar to any society and its content and distribution depend on many factors such as the degree of socio-cultural development, political structure, degree of socio-economic development and political culture and so on. Derenčinovic's opinion, the basic tenets of this view can be summarized in five points:

- Everyone does it;
- Bribery is necessary for society to progress;
- The quality of giving and taking is formally indistinguishable;
- The same rules are not applied to each bribery, so they are inherently immoral;
- Political action of corruption is either small or it cannot be proven (Derenčinovic, 2001:37).

According to the opinion of legal experts, the causes of corruptions shouldn't be sought in the lack of legal regulation of life relations but in the inertia or inadequate implementation of the regulation.

Institutionalist perspective assumes that the phenomenon of corruption of a certain subject is based on the norms and structure of the institution to which it belongs, so its actions are determined primarily by rules of conduct that are applicable in a given institution.

Representatives of the interest point of view believe that every corrupted public official is a person who completely subordinates his position in the state hierarchy to encourage personal material benefits, thus determining the corrupt public officials as people who use the service for the pursuit of their own interests.

Although according to the extent and degree of presence in social life differs from country to country, corruption is present in all countries, to a greater or lesser extent, regardless of whether they are developed or not. However, it is certainly the most fatal for developing countries because it reduces and hinders their economic growth. Therefore, in most of these countries, corruption is one of the biggest problems.

The emergence and spread of corruption in these countries is the result of accumulated economic problems, low incomes or falling living standards for much of the population, and so on. In addition, as factors contributing to the growth of corruption especially in developing countries usually stand out: the weak state administration, lack of a legal state, political institutions, and poverty. These countries have inherited bureaucracy that lacks many regulatory institutions necessary for the functioning of a modern state and economy, as well as many conditions necessary for mechanisms of responsibility functions. On the other hand, the political and economic liberalization exposed the politicians to a wide range of pressures, many of which were corruption. This led to a lack of trust in the state, its institutions and the system as a whole. So, corruption is attempting to exploit all the weaknesses of the system of these countries, in order to quickly and easily develop (Soskic, 2004). A fertile ground for the emergence of corruption also represents a society in which there is no control mechanism, where there are no standards of personal integrity and professional ethics.

Our country is in the group of countries with a very high level of corruption. After the democratic changes in 2000, The Corruption Perception Index published by Transparency International was 1.3, and in the meantime this index increased and the last three years is 3.5, which indicates that corruption in Serbia is still very widespread, and that the fight against this phenomenon has not made significant results. There are many causes that led to this situation. The wars in the former Yugoslavia, the political and economic sanctions imposed in 1992 by the United Nations Security Council, NATO bombing and other reasons have contributed to the rapid deterioration of the economy in our country, the rise of smuggling, various forms of financial fraud, including the rise of organized crime. Of course, in such circumstances, bribery and corruption are becoming a mass phenomenon and the main business associates. Some



other factors also contributed to the emergence and development of corruption, such as the existence of different exchange rates for the same currency (the so-called official exchange rate on the black market), the general moral crisis, poverty, unemployment, and poor legislation, uncoordinated legal system, and so on. All this has led to the fact that corruption is becoming present in all spheres of society, and that a large number of Serbian citizens rank corruption among the most important social problems. In the last few years the citizens of Serbia rank the corruption in the fourth place of importance of the society problems, after poverty, unemployment and crime. Conducted research shows that citizens as the main cause of corruption in our country state lawlessness and the lack of the legal state and the moral crisis of society.

However, in our country, there is a small number of studies that deal with this problem and data from the conducted research show that corruption in our country has a systemic character, and that has affected all public services, and that the citizens have simply accepted corruptive behavior as a form of socially acceptable way of communication. In fact, most people consider corruption to be adverse social phenomenon, but despite that, it is seen as an effective method of solving complex problems and bypassing the administrative procedures, what we call "bureaucracy" in the everyday life. In addition, the relative confusion has been noticed as to what can be classified into the phenomenology of corruption. Confusion about the moral condemnation of certain aspects of corrupting exists, mostly when it comes to the following steps: "Giving the election contributions to political parties", "giving gifts to physicians", "the use of the acquaintances in order to hire someone close to you," "added attorney fees to help the accused in court". From the above it can be concluded that what is normally considered as "using connections and acquaintances", is exempted from the phenomenology of corruption.

So, the citizens have the impression of widespread prevalence of corruption. Three fifths of the polled citizens of Serbia (60%) claimed that almost all employees in the public sector are corrupt, but also that there is no immune person to corruption (Centre for Policy Studies, Argument Agency, 2002). In this regard, the citizens are convinced that corruption has most affected customs officers, doctors, police officers, lawyers, politicians, judges, tax collectors, school teachers. Observed on the basis of previous attitudes, the growth of corruption is noticeable in the case of doctors, university teachers and municipal employees, while the decline is noticed in the case of corrupt officials in the ministries, judges, tax offices.

When it comes to education, Transparency International published the data on the perception of corruption in education in Serbia in 2009, where the influence of the perception of corruption in education is very high, because on a scale of 1 (lowest) to 5 (highest) Serbia scored 3.6. According to these data, the education sector, in the opinion of the citizens of Serbia is on the 12th place (out of 23) for corruption (at the first are political parties and health care).

## ***CORRUPTION IN EDUCATIONAL SYSTEM***

The education system in Serbia has been undergoing major reforms, but it still falls far short of European standards. There are many reasons that led to it, but certainly the crucial one is indifference of the state to deal seriously with education and its quality, and high corruption at all levels, which led to an almost endemic forms of the so called "Education market" in Serbia (Džalto, 2012). In contemporary circumstances in the Republic of Serbia, the education system is closed in itself, separate from its environment, shaped by a commercial interest, subjected to partisan influence, decorated with mainly short term in order to satisfy all interests regardless of the long term consequences of this way of solving the problem (Development Strategy education in Serbia until 2020).

However, corruption in education, especially higher education, is not a topic that is often described and discussed in academic circles. This is probably due to the fact that the academic institutions are considered in some way above so "low impulses" that bind to the other segments of society. On the other hand, and society itself views universities as special institutions that should be the embodiment of virtues and integrity.

Unfortunately, the educational system has not remained immune to corruption. In fact, it is widely known that teachers have low salaries, which are, after all, the reason of frequent strikes of professors and teachers, especially in elementary and secondary education. Low salaries have also contributed to the fact that a number of teachers find a way to increase their own income in corruption. So the bribe became present in this area. The public often speaks of the cases of "purchasing" exams, diploma, bribing of the authorities when enrolling in secondary schools, colleges and similar. At the same time it is particularly noticeable that in recent years, so-called petty corruption in the education sector expanded to a higher education institution or to university professors and students, as well as to Administrative Service of the faculties. This kind of corruption is taking place in several levels, but the most common situation is the following:

- Students in different ways and by different means are buying exams from professors;
- Administrative workers falsify information about students during the various applications for enrollment to the university, the halls of residence, student loans and similar.

Bribery in this area has particularly harmful consequences, primarily because it affects the distortion of system of values in young people. It causes that those who have, "a little knowledge and a lot of money," finished schools and studies, will try to do and finish all the other things in life in that way, and that they will accept bribes and corruption as a way of resolving all problems. This creates a pattern of behavior in which kids do not know what the value is, and this corruption becomes fatal to entire generations, because of the fact that in the children's minds the whole system of values is degrading. Loss of confidence in academic institutions is the most devastating influence of corruption in education.

However, corruption in this area is not limited only to receiving and giving bribes. Problems also include the non-transparent financial flows, corruption in the preparatory classes, cheating on exams, private lessons, forced purchase of textbooks, unclear criteria for establishing the price lists etc.

Accordingly, some of the behaviors that show the presence of corruption in this area include the following:

- Approval of the work of the educational institutions beside the non-fulfillment of conditions;
- Favoring certain institutions in the selection of textbooks or supplies that will be used;
- Illegal entry fee where education is free;
- Corruption in public procurement and investment activities in education;
- Production of fake diplomas and qualification certificates;
- Fictional teachers, etc.

Organization for Economic Cooperation and Development (OECD) has published a study in 2012 entitled *Strengthening Integrity and Fighting Corruption in Education*, Serbia within which, among other things, an analysis was done of official complaints filed by the Ministry of Education and Science of which areas were most education users complaining about. The observed period was December 2010- December 2011. During this period, users were complaining the most about the procedures and administration of the universities (19% of complaints). This was mainly relevant to the performance of the examinations, evaluations, possibility of getting scholarships and similar. Even the Ministry was often the subject of complaints about the slow resolution of administrative request, including the validating of diplomas.

On the other hand, employed in the system were the most complained about the area of hiring and firing without respecting adequate procedures, or on the basis of personal preferences or political affiliation.

Also, problems with school administrations are among the three areas with the most complaints. This category refers to the work of school principals and school boards, and occasionally to the school administration and includes the teachers' complaint about the schedule of classes. Other categories are related to the conditions in the schools and around schools, appeals to teachers' behavior, misconducts, violence in the classroom and the disregard of legal proceedings and similar.

When it comes to corruption within the profession, appointments and promotions are often given as one of its manifestations. The cause of this type of corruption is most commonly found in the inadequate criteria for promotion, and the fact that they are not selective enough and do not work as solid \_ standards for the evaluation of the competition, but they often depend on the lobbying and the prosthesis within a specific group.

On the fast spread of corruption in education particularly affects interest matching of one that corrupts and the corrupt, and the fact that this kind of corruption is usually done behind the closed doors and *tete a tete*, which makes it difficult to detect. Often, the bribery involves parents themselves, especially if their children are elementary school students, or students who are unable to understand the consequences and seriousness of the problem of corruption. In addition, to the spread of corruption contributes the fact that teachers themselves close their eyes to the corruption of their colleagues ignoring and tolerating corruption and thus allow it to expand. Namely because of the fact that corruption is so difficult to prove, at the same time it is assumed that the attempt by one who is not corrupt or fights against corruption would not be anything other than tilting at windmills. This means that if the corruption in the specific case is proved, there is always the lurking fear that he would object to one of the colleagues or superiors and that this would specifically lead to different treatment towards him (Antonic, et.al, 2001:125). That is why one of the big problems in the fight against corruption is the fact that persons who report illegalities, irregularities and corruption in the organizations in which they work without adequate legal protection. Therefore there is a need to pass a special law to regulate the protection of such persons, in a manner in which they will be able to report perceived violations, without fear of getting fired or penalized in a different way.

Since the perpetrators of corruption in education are regular participants in the system (teachers, principals, students, students, parents), their motives to circumvent or violate the rules often come from the perception that education does not provide what is expected of it and that a circumvention of the rules is one of the possible and often the only available cure for it, (for example, because it does not improve learning in the classroom as forcing parents to bribe teachers for additional classes or grades, or failure to provide fair conditions of competition for scarce funding for universities causes that students cheat in order to get scholarships, etc.).

In this connection, the problem is the fact that there is still no data on the extent of public procurement in the education sector, although it is known that the procurement area provides an opportunity for corruption. For example, in the above-mentioned OECD report, it was pointed out, for example, that a legal gray area exists in the undertaken procurement with the money collected privately from parents for organizing school trips.

Academic systems that are politicized may also be susceptible to corruption. Thus politicians can misuse their influence to secure a teaching position for themselves or someone close to them, and the effect can be used for distribution of budget funds for education. There appears justified fear that the university would become a place where diplomas, degrees, titles, freelance articles, participate in projects and all that in a moral society should not be for sale. Therefore, the authors of the draft of the Education Strategy in Serbia until 2020 were absolutely right when they located the politicization of education as one of the biggest problems. Forms of politicization have so far been most evident when it comes to the choice of the management bodies and management in

schools. As evidence of the extent of corruption in universities, by the results of investigation of corruption at the Belgrade Universities, which in the period from November 2001 to March 2002, conducted by Student Alliance of Belgrade, in cooperation with market research at the Faculty of Organizational Sciences, Ministry of Education, and the international NGO to fight corruption *Transparency International*. The results show the most notable data on the extent of corruption is in medical faculties and the least corruption was noticed in the Faculty of Science. This research shows that only 11% of students reported that they do not pay the exams on their faculty, while at the Medical Faculty that reported only 2% of students. Passing the exams with the help of the acquaintances, is considered to be a common occurrence by 31% of students, while on the medical group that opinion has, 57% of students. 19% of respondents know Professors or teaching assistants who take money, while 47% of respondents knew of such lecturers at the medical group, and 9% on a natural-mathematical faculty group. The survey found that only 32% of students for moral reasons would not give money to avoid the loss of a college year, loans or student status.

All of the above is probably one of the reasons why 32% of students who did this survey after graduation intend to go abroad, while 27% of them do not know or does not have a clear plan as to whether to leave the country.

The survey of a representative sample of students in Belgrade, Novi Sad, Nis and Kragujevac done in 2003 also showed interesting results: 98% the students had heard that some of the forms of corruption exist in their own department! Students say that:

- They heard about bribery for the exam or assessment - 68%
- There is corruption in enrollment - 72%
- heard of cheating in an exam - 79%
- There is corruption in the administration - 29%
- About 15% of their peers who live in the dorms that place get illegally
- Books are not to be found in the library - 72%
- Every third textbook is photocopied
- have been in the situation that as a condition take the exam and buy textbooks at the insistence of teachers - 53%
- When a professor insists that students buy the textbook as a condition for taking the exam, the textbook buy directly from professors - 25%
- University professors abusing their obligation to test objectively - 60%
- Their influence can help teachers if they were in the investigation of corruption - 70%

On the other hand, students would:

- cheat on the exam if they know they will not be caught - 69%, and (usually) would not feel bad after cheating - 53%
- prefer to take the test with a professor where has become easier to cheat - 53%
- offer a bribe for the exam if cannot pass it otherwise - 31%

- take an advantage of the opportunity to enroll illegally if they know they will not be caught - 31%
- prescribed severe penalties for teachers - 84%, and minor ones for students - 40%

Finally, students:

- do not know what are the penalties provided for professors and what for students - 90%
- believe that corruption in higher education is not controlled by the appropriate authorities - 56%
- would not report case of bribery for taking the exam - 57%.
- think that corruption exists more somewhere else, so they say that the number of professors who demand bribes at other colleges is far greater than the number of such teachers of their faculties.

That systemic corruption still exists in the national universities showed the latest survey conducted by the Education Development Belgrade Open School and Anticorruption student network. During the research, the most interesting questions were posed to the students of the Law Faculty, where it turned out that 22 percent of future freshmen and 29 percent of the students had heard of cases of bribery a professor who holds preparatory classes. That someone from the administration received a bribe knows 30 percent of the academics and the envelope traveling through an agent, 37 percent of them testify. As much as two-thirds know that someone is subsequently inserted on the ranking list for admission. On the list of offenses in which the students were participants, witnesses or have heard about them, and there is an entrance test before passing it, giving gifts, falsifying the results of the entrance examination. Giving a bribe to someone in the administration of the college, providing favors and illegal changes in the rankings, are also forms of corruption, which one-third of students and graduates heard that can happen.

On the other hand, academics from the Faculty of Economics, answering questions about the books, said that 31.5 percent of them were forced to buy books or other materials from their teachers, while 60 percent said that they would never report the offense because of the consequences. Also at Faculty of Agriculture three quarters of students were forced to buy the textbook and a third thinks that is why they got higher grades. Also, almost half of them bought the book directly from the professor.

Another problem that potentially represents a source for the spread of corruption are private lessons. Namely the percentage of pupils and students who attend after school classes in Serbia is higher than the average for OECD countries and much higher than in countries with successful systems, such as Canada, the Netherlands, and Finland in particular. More than one-third of Serbian students attend extra lessons, and more than one-fourth the supplementary classes. Inefficiency of learning during regular school classes creates a need for additional lessons and encourages the expansion of private education as a widespread,

commonly accepted solution for hard classes, on the eve of assessment and the preparation of entrance exams. Of course this does not mean that all private lessons are illegal or unethical, but its occurrence in Serbia demands attention and well planned action to prevent the current practice to move to a gray zone, when private education is becoming a prerequisite for a positive grade or a transfer to higher levels of education.

## ***MEASURES FOR PREVENTING CORRUPTION IN EDUCATION***

Corruption in education is very difficult to prove, which implies first of all thought, on the relationship between teacher, pupil or student, or on "buying" exam and bribery. In addition, students often do not want to talk about bribery and corruption at their faculty. The reason for this is certainly the fact that both parties benefit from these activities, and are trying to conceal it.

It is therefore very important to take a series of measures and reforms in the direction of preventing corruption in this area, and for what is significant the equal participation of all stakeholders of the educational process. So it is considered necessary to include college and university authorities, as well as the active participation of the police and judicial authorities in the fight against corruption in this area. Establishment of a broad network of students at all universities in the country is considered useful, to collect data and indications in order to discourage all forms of corruption. Control itself, or the terms and the exam procedures must be tightened, so that the public oral examination must be guaranteed, while during a written exam the objectivity and preventing the abuses in evaluation must be provided. Similar measures are necessary when taking the entrance exams for admission to the college and similar. Of course, the greatest help in preventing and tackling corruption can be provided by our teachers and pupils (students) and their parents.

Tackling corruption will help the adoption of the package of anti-corruption laws. Provisions of the statute of state universities in Serbia provides for the establishment of special bodies tasked to oversee observance of ethical standards among teachers and explorers. Accordingly, at the University of Belgrade, the Court of Honor has been founded in which composition contains five teachers, one student and a Judge of the Supreme Court. The basis for this court's work is a code of honor. The applications relating to possible corruption and other abuses can be submitted in this court.. However, the sanctions that the court may impose are relatively mild and consist in imposing a public reprimand when it comes to the difficult case, provided the referral request to the Council of the University of suspension. In this regard, during 2003 two university Code of Ethics were passed: Code of Ethics of the University of Belgrade and the Code of Ethics of the

University of Nis. The above codes contain four strong general principles (impartiality, accountability, protection of the public interest and integrity), then, acting by a personal example and a special one - independence / freedom of profession. Except the obligation to respect human rights and dignity and the preservation of the credibility and reputation of the profession, the good news is that the category of "decency" that subsumes knowledge, diligence, honesty, commitment and culture of vocation.

The point is that corruption should be less present in education, and to achieve this, it is essential that education is the supreme value of the country. It is also important that there exist clear laws and that the statutes of the faculties are aligned with them, that autonomy would not be arbitrarily interpreted.

In addition, it is necessary in educational institutions to organize periodic twin studies, that is, an anonymous survey, 1 or 2 times a year to students (pupils) and employees. If a survey of students / pupils shows that an employee (by name) is suspected of corruption, then there is no realistic basis to draw a conclusion. If, at the same time, employees' survey shows the same, then there is a real basis for reasonable suspicion of corruption. The results of these investigations must be made public, through the report of the Independent Commission for the implementation of the survey, which is published on the notice board of the institution and a unique web portal, every year. The repeated public condemnation will lead to a reaction of the competent institutions in the form of an investigation, but the distance and fellow members of the corrupt member.

Unfortunately, the government still discourages the fight against corruption in this area, and as evidence of this are the slow judicial processes. An example is the famous public affair Index. On suspicion of taking bribes from students for the exam in early March 2007 a number of teachers and other persons employed in colleges has been arrested in a synchronized action of the police in Kragujevac, Kraljevo and Belgrade as well as others, mostly brokers. The trial of the members of the so-called "educational mafia" began in Smederevo District Court in December 2008. The first indictments in the "Index" affair was filed in August 2007 against 41 persons accused of bribery, abuse of official position and forgery. On the indictment are several law professors in Kragujevac, Nis and Belgrade, who are charged with positive reviews enrolling in the indexes for the sum of 500 to 750 euros, while the diplomas had been sold at 12,000 to 16,000 euros. District Attorney's Office in Smederevo, in April 2008, has filed another indictment, which is an integral part of the previous one, against even 48 more people suspected of involvement in the affair "Index". The indictment, which was filed against 33 students of the Law Faculty of Kragujevac and 14 individuals who are alleged to help with the exam, charged the defendants in bribery or incitement to an abuse of official position, because they were giving money to the accused professors, personally or through others, in order to get their grades written in their indexes for the exams that they haven't taken. However, this affair has not yet received a court epilogue, which indicates that the efficiency of the courts in dealing with cases of corruption in education is extremely low and that there is no political will to get in



the way of this problem. On the other hand, this is also an incentive for potential offenders to continue committing these criminal acts.

The legal framework for the fight against corruption and therefore the corruption in this area Serbia has. Serbia has signed the Criminal Law and the Civil Law Convention on Corruption. In addition, Serbia has adopted a national strategy for the fight against corruption. It is interesting to note that the amendments to the Criminal Code of the Republic of Serbia in 2002, in the Penal Code (Chapter 21a) was entered nine offenses of corruption, among whom were a crime of corruption in education (Article 255z), by which the education was determined as a protective object of this particular crime, and the perpetrators of this crime teachers / professors. However, for the offense in 2002 only 2 persons were reported, and no person has been charged or convicted for the offense.

Therefore, even though the intention of the legislator was that corruption in certain areas, one of which was the area of education emphasizes as a form of corrupt behavior that is common, and to emphasize the increased risk of this form of social corruption, the desired results were not achieved, since the number of applicants for the commission of these crimes was negligibly small. On the other hand, the Criminal Code that came into effect in 2006 established the number of criminal acts that may contain elements of corruption, including crimes such as bribery, abuse of power, illegal brokering, trading in influence and the like. Within these offenses any form of corruption was sanctioned both in the state and the private sector, and therefore in the field of education. Unfortunately, the data of the Statistical Office of the Republic of Serbia show that the criminal acts of corruption are still insufficiently detected and prosecuted. For example in 2011, 12 criminal charges were filed only for the offense of trafficking in influence, while for the crime of accepting bribes filed 96, 58 or bribery criminal charges. Of this number, 11 persons were convicted for the offense of trafficking in influence, while for passive bribery only 25 persons were convicted, and for active bribery 24 persons (Communication Bureau of Statistics no..203, 2012).

On the other hand, the institutional framework for the prevention of corruption in the form of the Anti-Corruption Agency and the fight against corruption is adequate, but their relationship with the education sector is still very weak. Also the coverage of the persons in the education sector, which fall under the Law on the fight against corruption is modest since it includes only principals and deans of faculties.

The role of inspection bodies is also of great importance to the prevention of corruption in this area, but the problem lies in the fact that the educational branch of the inspection does not have enough people, and therefore its effectiveness in preventing corruption in education is limited. Finally, we should not forget the importance which in the fight against corruption may have the civil organizations, which is why they should be included in development plans and monitoring the integrity of the education sector.

## ***CONCLUSION***

Organized and qualitative development of the education system is one of the key conditions for the development of the Republic of Serbia to the knowledge-based society capable of providing good employment of the population. For an educational system to become a coherent one and achieve its potential requires a period of stability of key policies and practices. However, initiatives for improving the the education system is not yet implemented, the existing gaps in the supervision and quality control can do great harm to the students who should be able to use the educational process that are transparent and of a good quality for everyone.

In Serbia, the low level of professional ethics, combined with the shortcomings of the legal system contributes to corruption in this area. Therefore, improvement of professional ethics can contribute significantly to curb corruption in this area. The current capacity of the educational system to detect and prevent corruption are low. Procurement and supply of textbooks still leave room for corruption because it is important that educational institutions adopt standards of integrity. Although the budgets of schools are small, it is in line with OECD recommendations to establish mechanisms for financial control since the school conceal a portion of income and they sometimes get to the money by violating the law. On the other hand, authorities in Serbia should as soon as possible define the criteria for hiring teachers because, as we pointed out, the public perception is that their employment depends on political connections and personal sympathies rather than expertise. You need to review the system of private classes so that it would not have happened to become a condition for the exams or better grade.

Finally, in accordance with the Action Plan for the Implementation of the National Strategy for the Fight against Corruption it will be imposed as necessary to include topics about corruption and the fight against it in existing school curricula and university courses and accordingly it is necessary to carry out training of trainers for the lecture about corruption.

The fight against corruption must be organized and time-consuming process of applying designed defined measures to prevent and combat corruption. Despite having passed some important anti-corruption laws, the fight against this phenomenon did not yield sufficient results. Prosecuted corruption cases is disproportionate to the number of occurrences in which the suspicion of the public pointed out. Therefore, as necessary imposes the provision of greater transparency, and the available data and information on the work of educational institutions in Serbia. Any effective fight against corruption must include awareness of all members of society that is in their interest to reduce corruption because it is disastrous, not only because it reduces the efficiency of economic activities, but also because its institutionalization undermines the entire system of social values. This applies in particular to the education system as bribery in this area has

particularly harmful consequences, primarily because it affects the distortion of values in young people. Therefore, the loss of confidence in academic institutions is the most devastating impact of corruption in education.

In the end, the fight against this evil can not be conducted through the use of frivolous or partial measures, but must take place at a general social level, with the use of regression and preventive measures. What is encouraging is the fact that awareness of the damaging effects of corruption is evident among the majority of population. Therefore, in addition to the legal framework, especially the consistent application of the law in practice and participation of all stakeholders of the educational process in the fight against corruption it is especially important to create a culture opposed to corruption, with the help of good moral and civic education.

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***PART THREE***  
***QUALITY ISSUES IN EDUCATION***





# **INNOVATIVE METHODS OF RESOLVING PROBLEMS IN THE AREA OF EDUCATION**

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## **Abstract:**

*TRIZ (Теория Решения Изобретательных Задач), an acronym for the theory of innovative problem-solving, is a method which enables the stimulating of a creative resolving of problems by using a development knowledge base. The TRIZ method has come about as a need to resolve technical and industrial problems, and it has proven to be very successfully used in the resolving of problems in IT and education as well. In fact, the innovative discoveries in a certain area of technology can also be applied on technical, as well as social human activities, and thus also on education as well. TRIZ is also a method of resolving problems in integration security systems based on groups of data obtained from a base of empirical solutions and the use of a similar system. TRIZ research begins with the hypothesis that there are no universal principles of seeking a creative solution for every problem based on innovations and progressive technologies. The educational system is one of the most complex social systems, with many contradictions. The contradictions are the desires, in opposition to the possibilities of the students, the wishes of the teaching staff in contrast with the possibilities of the educational institution, etc. so that there is a linking of well-informed social demands to improve the quality of education by creating new curricula, and improving the technical resources of society. One of the main aims of TRIZ is to prove that removing contradictions are necessary for creative solutions. An important facet of the application of the TRIZ method in education is the reviewing of the opinions of lectures and teachers of educational technology, which is the first step to introducing the TRIZ method into the curriculum in the lower educational levels. The paper also offers a proposed application of new educational management models by way of the TRIZ method, via a pattern of forty innovative principles, and a pattern of four most influential features with a separate contribution of applying creativity principles in the area of education.*

**Key words:** *creative methods, education, contradictions, inovative principles, TRIZ matrix, four most influential features*

## ***INTRODUCTION***

TRIZ is a method of resolving problems in the area of the integration of security systems based on data obtained from a base of empirical solutions and the use of a similar system. The method uses the principle of REPEATABILITY and was developed by Altshuller (1), who has established that scientific literature lacks a method of creating new solutions. The TRIZ method today represents an international means of approaching creativity in resolving problems of security integration, which gives results based on discovering the causes of the problems and seeking the solutions. The TRIZ method identifies 2 types of contradictions:

1. Physical contradictions, which is a direct opposing of two values for the same parameter formulated by an educational system.
2. Technical contradictions which are situations in which an improving of parameter A leads to a worsening of parameter B.

Also taking place in an educational system are organizational contradictions. By resolving organizational contradictions, we have the opportunity to once more resolve physical or technical contradictions. The TRIZ method suggests avoiding the method of exhaustion: by using a contradiction pattern in resolving technical contradictions, as well as changes in the system in resolving physical contradictions. In analyzes complex images and event details, TRIZ can be useful in checking out creativity in the educational process as well as creativity models. The foundation of this method is based on the following:

- A study of any topic which develops the system,
- The correlation between different subjects through the system's evolution pattern,
- The application of creative methods of problem-solving in teaching,
- The resolving of creative problems by teaching on any topic by way of demonstrating a model,
- Mastering methods for overcoming psychological inertia,
- An analysis of regulations from the area of education, and
- Reporting during the educational cycle.

Achieving the results which are necessary for success is possible when the teacher is guided by the creative abilities of students and by applying theory, the teacher resolves problems in innovative ways. Thus, TRIZ enables a systematical approach to creativity, offering the possibility of teaching each student and developing creative abilities in any area of human activity.

TRIZ is based on researching and applying the patterns of development of various systems – technological and production processes, scientific theory, organizations, etc. Based on these patterns, methods for seeking creative solutions were developed, and these methods include three basic components:

- An analysis of the logic of the given system and its problems,
- An application of special knowledge bases which include the most efficient methods for problem-resolving,
- The means of overcoming psychological inertia in resolving problems.



TRIZ enables its users to improve any system and resolve the majority of creative problems. The essence of the TRIZ method is a new way of thinking, or in other words, thinking in a more logical, useful and creative way. Until today, the TRIZ method has been applied in science, technology, medicine, event prediction, prevention and removal of emergency situations and various other undesirable events, as well as managing organizations and systems, etc. Experience in using the TRIZ method by TRIZ specialists has shown the developing of certain features, such as the following:

- a need for creativity;
- the ability of applying creative methods and models in various areas;
- developing a new type of intuition based on evolution patterns;
- the ability to quickly and efficiently assimilate knowledge in new areas.

In the educational area, TRIZ pedagogy has an additional group of aims:

- preserving and strengthening the natural creative abilities of students,
- forming creativity and vital orientations towards the realizing of large aims,
- forming a creative way of thinking - “the development of creative imagination”,
- mastering rapid learning by way of TRIZ techniques.

Based on the mentioned, there are different structures of solutions in the process of planning and carrying out cycles of education, and thus it is necessary to take them into consideration as soon as possible. The obtained solutions enter education via the method of compromise, showing an applicability of the principles of this method. The contradiction pattern implies the group of features of an educational system which individually or jointly impact productivity, but in contradiction with each other, as the final measure of a system’s efficiency.

## ***THE APPLICATION OF THE TRIZ METHOD IN THE ANALYSIS OF THE EDUCATIONAL SYSTEM***

TRIZ integrates solutions which aim to inspire, engage and motivate the use of technological methods in resolving problems in education. Through its innovative modules, the TRIZ method seeks solutions by demonstrating the following generation of products in contemporary practice in the aim of widening borders and raising standards in the educational sector. TRIZ solutions should enable an efficient automatizing of all work procedures and secure access and knowledge of all facts of the educational process with content information and thus render a comprehensive advice-giving review on an integrated platform (3). Methods of seeking creating solutions were developed by gaining access to the process from any place at any time, represents its total integrated environment, based on scientific theory, the studying of

educational institutions, application of patterns of developing various systems. These methods include three basic components:

- An analysis of logic of the educational system and its problems,
- The application of special knowledge bases as the most efficient methods for resolving problems,
- The Means for overcoming psychological inertia in the process of problem-solving.

The basic ideas of applying the TRIZ method in pedagogy are the following (6):

- A study of any topic, as part of system development,
- The correlation between different subjects by way of the patterns of the system's evolution,
- The application of creative methods for resolving problems in teaching,
- A creative solving of problems by thematic teaching via demonstration models,
- Mastering the methods for overcoming psychological inertia.

In an educational system, the application of the TRIZ method also has an additional group of aims:

- preserving and strengthening the natural creative abilities of a child,
- forming creativity, vital orientations towards aim realization,
- forming a creative way of thinking.

In short, due to limited space for this paper, we are citing only the basic traits of the TRIZ method, namely:

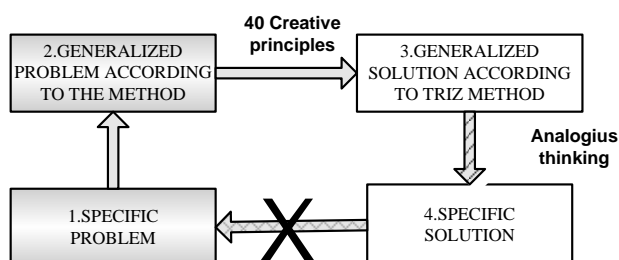
1. Flexibility, a quick response to changes in the educational system,
2. An exceptional design in the implementation of the process,
3. A high level of quality of offered services in the process of education,
4. An integrated solution of management in education via one platform,
5. Reports adapted to the needs of an educational system,
6. An easy and understandable user environment,
7. A simpler application in regards to other methods,
8. An offer of a larger scope of options for the application from a higher level of management.

TRIZ research starts from the hypothesis that there are no universal principles of finding a creative solution for every problem on the basis of progressive technologies. If these principles could be identified, work teams would in the process of projecting have more creativity and would be able to predict many more work situations. The TRIZ method is based on the following principles:

1. Somebody somewhere already has a solution for this or a similar problem.
2. In today's age, creativity is based on finding solutions and their adapting to the given problem.

Diagram 1 shows the principle of finding a solution according to the TRIZ method. The thick gray lines show the transformation during the directing of a problem or solution towards another problem. This process consists of problem-analysis and analytic use of empirical data from the existing database. The arrows with hatching represent analogous thinking which occurs during the seeking of a solution for a specific case. The crossed-over arrow with hatching shows that the TRIZ method cannot be used while seeking for a specific problem with a specific solution.

*Diagram 1. The principle of seeking a solution according to the TRIZ method*



The TRIZ method is made up of five steps (5), which force the user to master the present psychological prejudices via a structured approach, with the aid of divergent thinking while solving problems which is typical when ideas are sought for a current problem, namely:

1. Determining and defining the problem;
2. Rephrasing the problem in the sense of contradictions;
3. Formulating the technical contradictions by using the pattern of 40 characteristics;
4. Seeking for an analogous solution from the 40 principle pattern;
5. Determining the final creative solution.

In developing the method, it was discovered that, in the process of planning the educational system, it has exceptional performances concerning the speed of analysis and solution-finding. Comparing the method with a large number of other methods (Kaplan et al. 2001), it was concluded that decision-making can take place via the TRIZ method, based on seven criteria, namely:

1. The technique of conditioning/motivating/organizing;
2. The technique based on innovations;
3. The technique of systematizing;
4. The technique of focusing – concentrating;
5. The technique of intimation;
6. The technique of development management;
7. The technique of coinciding.

## ***INTRODUCING THE TRIZ METHOD INTO THE EDUCATIONAL SYSTEM***

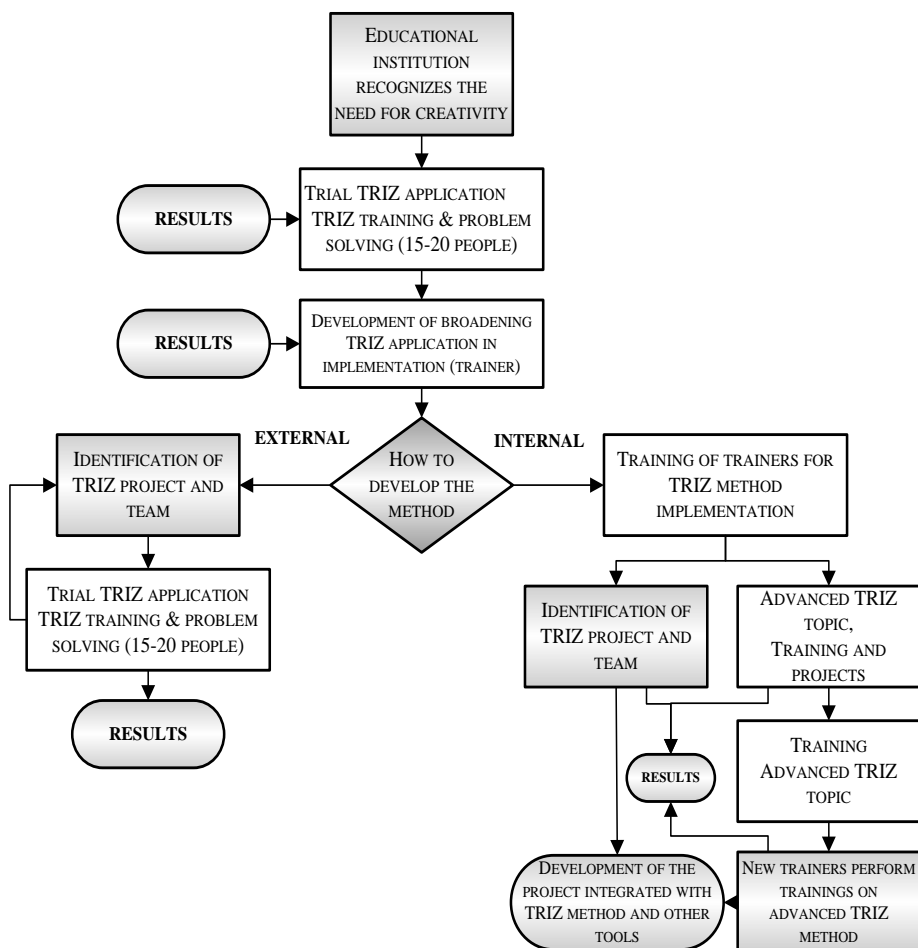
The consequences of a direct increase of creativity in an educational institution are the removing of obstacles under the name 'suspicion' and the acronym 'NIH' (Not Invented Here), and using the resources of the educational institution during the distribution of key people within a timeframe. The explanation of the process of introducing the TRIZ method has been given in the flow diagram, Diagram 2, where each step is the object of analysis in the sense of a link between the results and new ideas, as well as new concepts, creativity and improving the results of organizational changes.

Step 1 represents the decision in the educational institution which notifies that an increase of creativity is necessary. This step is caused by the need to use creative ideas, even though this can occur via legally regulated demands. TRIZ leaders are chosen from one or more educational institutions during directed introducing and institutionalizing of the TRIZ method. Step 2 is a choice of one or more pilot projects for introducing this method. The legal demands or problem identification in the institution represents a corrective action of the electoral system, so that the leader works with the consultants on choosing the problems which will be optimally useful for future curricula. Step 3 is an implementing of the results. In accordance with the needs of the educational institution, this can be done with a joint effort by the institution itself. The results generated solutions for problems by implementing the concepts obtained in Step 2, so it is evident that the participants got support while working on Step 2. Following success in Steps 2 and 3, TRIZ leaders of an educational institution gather in one of two trails. A team of trained TRIZ participants are formed via an internal procedure from an educational institution – an internal team, which will replace the consultants, and gain greater experience. Lately, hybrid approaches have been used with success which quickly follow the obtained results by applying the method via an external procedure, while the internal procedure guarantees a continuity of future development. The external procedure is also used for strategic planning, and for applying the TRIZ method, while prediction technology is used for an educational institution, while the internal procedure is used for producing development platforms. Internal experts research the strategic use of the TRIZ method and become internal consultants, as well as instructors, during the *progressive* training topics. Internal experts become collective leaders in overcoming the last obstacles for carrying out the TRIZ method by following the right integral branch of the flow diagram (3).

The author of the TRIZ method identifies forty features, and links the factors by creating the following models of technical contradictories. The presented tables of innovative contradiction features also represent an interaction between these features. This method reviews the influences of innovative traits, Table II, for every problem which is noticed on a normalized system. A normalized system

represents a system which carries out a certain function with input information data, while every following input information in the educational system represents a parallel function.

**Diagram 2. Flow diagram of TRIZ implementation (4)**



## ***CONDITIONS FOR APPLYING THE CONTRADICTION PATTERN***

The TRIZ method is based on the applying the contradiction pattern, that is, 40 principles (Table I), which can fulfill all expectations (Mann et al., 2002), only if the following laws are applied:

1. **The law of development of ideal systems** - An ideal system is defined as the best possible solution in the given contradictions, when there are no resource limits.
2. **Ideality =  $\Sigma$  Uses / Costs +  $\Sigma$  Damage.**
3. **The law of unity or joint penetration and contradictions** – Technical development occurs in a joint interaction of contradictions. The philosophical principles of Yin and Yang must communicate and overcome mutual contradictions.
4. **Law on the denial of denial** – Development consists of continuously repeating the same steps, but on a higher level of development by using newer technologies, and a set of new experiences and elements. At the moment, the educational system model has an asymmetrical structure amid the Ministry of Education and educational institutions, with a tendency of symmetry being established, and thus the results of the basic values in the future will be in the realm of consulting partnerships.
5. **Law of transforming quantity into quality** – Quantity changes with time are transformed into quality ones.
6. **Law of unequal development of a subsystem** – Different parts of the educational system have developed unequally.
7. **Law of the system crossing to higher levels** – Systems differ from mono or one-system functions and two or multifunctional systems. By being developed, educational institutions will summon experts and teachers to analyze market needs, design educational model, carry out original research, give counseling as well as the carrying out the process ‘from end to end’, i.e. from the beginning of education to delivering creative experts.
8. **Law of transferring from a macro to a micro level** – educational systems develops in accordance with the development of their subsystems. Various centers of micro-jurisdiction will develop, each one directed towards a segment of the market environment with a tendency of increasing the database.

## ***SUPPORTING THE TRIZ METHOD IN EDUCATION***

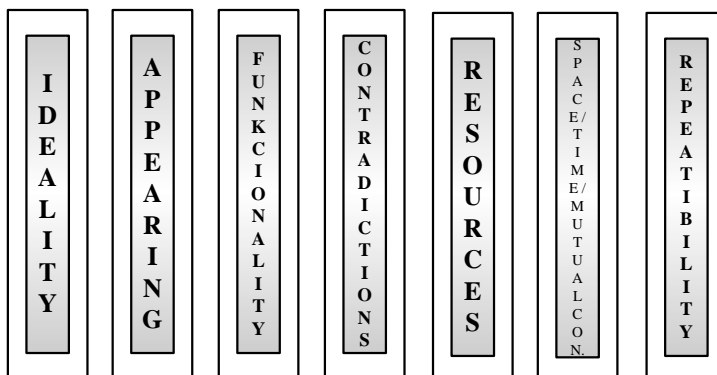
Bearing in mind the fact that the TRIZ method is based on 7 columns, Diagram 3 points to their possible significance on the support of the educational function in the system.

**IDEALITY**: Every successful creative activity develops in the direction of increasing ideality – more advantage, less costs, less damage. In creating and maintaining creative individuals, disruptions of development can be viewed as a

concept ‘only-X’, in such a way that education which ‘is self-created’ is achieved by carrying out the aims of the teaching activities.

**APPEARING:** This column was introduced into the TRIZ method in order for the method to review the relevant business situations in the educational process.

*Diagram 3. The seven-column table of the TRIZ model (4)*



**FUNCTIONALITY:** The educational system should focus on creating the function of creativity and the services which make it up, not only the creating of creativity with students.

**CONTRADICTIONS:** Educational systems are developed in the direction of increasing ideality via recurring dangers and resolving conflicts and contradictions. Contradictions eliminate the strategies planned by others and can be viewed as the primary instigator of the development of creativity.

**RESOURCES:** Anything in the educational system that is not used to its maximum is a potential resource of an educational institution.

**SPACE/TIME/CORRELATION:** The human mind is prone to what is known as psychological inertia. A displaced perspective of thinking includes physical space, a timeframe or the way various elements of the educational system correlate to each other.

**REPEATABILITY:** This column does not belong to the TRIZ method in the classical sense of the word, but can be found in the ‘professional’ TRIZ method.

## **CREATIVITY LEVELS**

The application of the TRIZ method can be carried out regardless of the level of creativity. Creativity levels are discreet levels of innovations at which events occur (3). During research, the following levels of creativity were observed, which describe the process analyzed in ‘micro centers’ (groups of networked high schools):

- 
- Level 1;* Routines in education resolve problems by methods known within various areas of expertise.
- Level 2;* A slight improvement of the educational system by using the known method  $6\Sigma$ , *Lean*, et al.
- Level 3;* Improvement of the foundation of the existing educational systems by way of methods known outside of the educational institution.
- Level 4;* **New systems imply new principles for carrying out primary functions in the educational system.**
- Level 5;* **Scientific discoveries which lead to fundamental shifts are rare.**

### ***INNOVATIVE PRINCIPLES IN EDUCATION***

The contradiction pattern of in education - Table I, (4), and forty innovative principles have also found an application in the areas of social human activities. There is an endeavor to find a potential solution of the concept which generates the experiences and knowledge in education thanks to a contradiction pattern, and this paper represents a theoretical contribution for solving conflicts in the area of education. By describing forty innovative principles and appropriate actions, it was enabled to redefine teaching activities in the area of education by interpreting educational functions, educational concepts and notions in the analysis. In the mentioned example, the innovative solutions – activities point to different levels of authority in the area of educational institutions in the organizing of teaching or in both areas (Stefanovic 2010). The mutual influence of the contradictory features of educational systems and innovative principles in education is shown in the contradiction patterns in Table 1.

In this pattern, the fields marked (-) point to the fact that TRIZ principles have no impact on one another, for example, universality does not impact segmenting, homogeneity has no impact on asymmetry, etc.

The mutual impact of TRIZ principles is stressed in the way that *up to four figures* can be found in certain areas of the pattern or the pattern space is empty when the improvement of one TRIZ feature does not impact the worsening of any other TRIZ feature. The contradiction patterns show the description of TRIZ principles and the necessary actions for increasing the efficiency of the educational system.





*Table 2 – Innovative principles in education (4)*

TRIZ Principle	Description of innovative principle	Actions <b>which enable a</b> redefining of teaching activities by interpreting business functions, educational concepts and notions
<b>(17) Transition to other dimensions</b>	<b>a. Transfer the event to a two or three-dimensional space.</b>	Offer a teaching program available online or connect computers to a network, or online tutoring. Celebrate the holidays of other cultures. Use more experiments than theoretical learning. Employ lecturing guests.
	<b>b. Consider the use of dimensions or moving outside the current plane.</b>	Use the satisfaction of the parents shown by the survey. Open the premises during the evenings and weekends. Make an internal communication line and virtual support after a school day. Change teaching styles.
	<b>c. Use a multilevel rather than a one-level event.</b>	Set apart and divide the students based on their needs, behavior, age, etc. Use cooperative learning and constructivism.
	<b>d. Direct disagreements to the event which is on the proper side.</b>	Make levels according to grades or interdisciplinary teams. Assign subjects to classrooms. Support horizontal responsibility. Envisage a model of a mobile library.
	<b>e. Use the “third” side in a given area.</b>	Give out and interpret the results of the students’ achievements in the area of learning, improve cooperation with parents, the school boards and other interested groups. Show the assessments of other schools according to areas, use external consultants for the programs. Establish a two-way communication between the teachers, parents, doctors, etc. Coordinate the use of the facilities between the school and social needs. Use tutorial knowledge and grades on the peer level.

## ***PATTERN OF THE FOUR MOST INFLUENTIAL FEATURES***

The essence of considering the impact of the features of the contradiction pattern on finding solutions to problems explains that the mechanisms at the basis of the features are very tightly linked with the features in the contradiction pattern within the area of idealization. In the aim of reducing the impact of participant features in the educational process on the system quality, which is the essence of the management process of education, a methodology was developed called the pattern of the four most influential features, which has made progress in the application of the educational model system and the occurring of a new classification of basic principles of the contradiction pattern on the **effect, facilities, duration, features, amount, frequency, movement complexity of information in the educational system and the schedule**, Table 3. By classifying 5 segments – the activities of **separating, rearranging, changes, adding and using other possibilities** – the fundamental mechanisms of the pattern of contradiction have been presented.

*Table 3 - Traits, mechanisms and principles of the educational system*

<b>EFFECT</b>	
1.Separate	Use interactive effect instead of continual.
2.Transfer	Transfer facility or environment.
3.Change	Change dimensions to 2D or 3D, and the structured nature of movement to unstructured.
4.Add	Add changeable parts, eliminate standstill, anti-action effect.
<b>FACILITY</b>	
1.Separate	Separate the system into segments/facilities and into several independent parts.
4.Add	Add or use the joint effects of the group.
<b>DURATION</b>	
1.Separate	Replace one cheap facility with several cheap ones.
4.Add	Add stages by processes.
<b>FEATURES</b>	
3.Change	Change the degree of module flexibility.
<b>AMOUNT</b>	
3.Change	Increase the number of parts; introduce feedback information and cross-checking.
<b>FREQUENCY</b>	
3.Change	Create a self-serving module in carrying out additional useful functions.

MOVEMENT COMPLEXITY	
3. Change	Change linear into circular movement, use centrifugal traits.
ENVIRONMENT	
3. Change	Change the temperature, flexibility, concentration of facility.
DIMENSIONS OF FACILITY	
3. Change	Use planes and 3D instead of lines, and a multi-level connecting of parts.
POSITION OF FACILITY	
3. Change	Turn modules or processes around.
SYMMETRY OF FACILITY	
3. Change	Change the forms of the subsystem from symmetrical to asymmetrical.
ATMOSPHERE	
3. Change	Enrich air with O <sub>2</sub> or neutral gases in the work environment.
FUNCTION	
4. Add	Via an interaction with the environment, use 'a little less' or 'somewhat more' from the method.
SCHEDULE	
3. Change	Separate the place from the location, create parallel operations.

The pattern of the four most influential features in Table 4 is a tool development, with the aim to enable the participants in the educational system to assess the quality of the system; to make up a dominant strategy, support the mechanisms of the four most influential features, stress the optimal ones, and endeavor to eliminate the negative features of the facility; and to enable the occurring of creativity in resolving the problems of students.

*Table 4 – Pattern of the four most influential traits (4)*

Improved pattern parameters	The most influential features of the educational system			
1. Segmenting	Features	Facility	Environment	Atmosphere
2. Connectivity	Features	Facility	Effect	Duration
3. Local quality	Facility	Features	Symmetry	Position
4. Asymmetry	Features	Facility	Complex movement	Frequency
5. Connectivity	Facility	Dimensions	Effect	Features
6. Universality	Frequency	Features	Frequency	Atmosphere
7. Grouping	Features	Facility	Symmetry	Function
8. Significance	Features	Facility	Frequency	Complex movement
9. Counter-effects	Environment	Features	Effect	Facility
10. Prior actions	Features	Facility	Frequency	Effect

According to the research results (3), which make up a number of solved cases by a representative sample, the degree of efficiency of the contradiction pattern amounted to 51%, while the degree of efficiency of the pattern of the four most influential features reached 79%.

Due to a limitation to space, only some parameters were shown, while the others were described in the references (4). The described analysis of frequency of innovative principles in educational institutions is based on the researching of educational institutions within the educational system.

Analyzing the arranging of principles, we should mention that the highest peak is in principle number 11- **Timely mitigation**, as well as number 23 – **Feedback information**, while the lowest trough in following the principles in the educational system is found in principles 18 – **External influences** and 30 - **Flexibility and transparency**.

According to the schedule of frequency of appearance in the contradiction pattern of innovative principles in educational institutions, it can be seen that innovative principle number 10 – the **Priority action** is used the most, but only the first ten represented principles are mentioned here: principle number 3 – **Local quality**, principle number 24 – **Mediating**, number 13 – **Repositioning**, principle number 2 – **Separability**, principle number 25 – **Self-functioning**, principle number 35 – **Parameter changes**, principle number 7 – **Grouping**, principle number 1 – **Segmenting** and principle number 4 – **Asymmetry**. The last principle according to frequency is principle number 38 – **Oxidation**.

## **CONCLUSION**

The paper reviews the application of the TRIZ method via a proposal of various principles of the decision-making process and quality assessment. The mentioned contradictions during the analysis of the hitherto educational process, as well as planning and implementing new curricula in the educational system are generally resolved by seeking compromises. The application of the TRIZ method implies the increase of creativity via the process of bringing a compromise solution, by including ideas from the theory of complexity and cybernetics at the basis of philosophy, and by using the contradictions pattern.

Contradictions, based on an analysis of regulations from the area of education as well as experiences during the functioning of the educational system, prove that creativity is more than art. It is assessed that the application of the principles of the classical TRIZ method becomes necessary, albeit not sufficient to be a part of a “systematical development of education for creative discussion.” TRIZ laws of the development of the educational system can be used to predict the trends on the market and due to this they must be ready to develop new possibilities as part of

educational plans. The results of this paper show that the reward for future TRIZ instructors of technological education is the very introducing of the TRIZ method into the classroom. Is it considered that it would be convenient to introduce the TRIZ method in resolving problems in high school as a thematic content of teaching. In regards to the level of education at which the TRIZ training should be introduced, the optimal levels recommended are the 10 and 11<sup>th</sup> grades of high school. The Serbian Ministry of Education and Science are taking into consideration possibilities as well as feasibility studies for discovering, applying and supporting creativity. The authors have acquired experience with TRIZ education and used many experiences from teaching.

Future research should follow a comparative analysis of managing the process of education via the contradiction pattern, the development of the pattern of the four most influential features and the decision pattern, and furthermore, it has been proved that in the future, the development of the educational system should be analyzed and valued together with those systems which are not information, technical and industrial ones.

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## ***THE ROLE AND THE IMPORTANCE OF A PRINCIPAL IN THE ACHIEVEMENTS OF THE SCHOOL***

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### ***Abstract:***

*The school, as a type of an open organization, requires that the employees adjust to the ever-changing environment. The employees should fulfil their duties best they can, so the school's achievements are high and it is a leader in the sector of services. The principals are one of the vital parts in the organization of the school's work. Their duties include good planning, organizing and implementing, which provides good results. In this paper, the importance of this job is elaborated, as well as the activities of a principal that lead to better quality in education.*

***Key words:*** *school, principals, quality*

## ***INTRODUCTION TO EDUCATION AND TRAINING SYSTEM***

Parents, students and teachers are not thrilled with a school today. It still has much of what it has inherited. It is not suitable for the realization of the man who we imagine in the vision of modern pedagogy, but even so, it withstands the test of time.

Traditional school was built on the model of a factory. Similarities with a factory are enormous: from architecture through the equipment, organization and content to the evaluation of educational effects. Students are taught in it such as raw materials in large groups, like products which are produced in small parts to get the final product. All the children are involved in the process of education at the same time with the hope that everyone will be effective and will advance at the same pace. Those children who do not progress at the planned pace are stopped and directed to the processing just like waste materials in a factory. The course of the daily schedule is the same as the production line - work at school starts, changes and ends independently of the demands and goals of education.

One of the characteristics of a school is a uniform solution. It refers to: size, design and structure of space, class sizes, equipment, work schedule, schedule of students in classes, ways of sitting, duration and changing of school breaks, etc. School buildings are also designed by the same scheme, and they have the following things in common: barrack layout, massiveness, uniformity of shape and structure of rooms and cold.

The organization of work is also similar. Everyone does the same thing in the same time and in the same way. The same thing is expected from everyone. The concept of teaching is based on the model of transmitting and receiving knowledge whose main transferor is a teacher. He is the most active element of the overall activity. He does everything by himself: prepares for a lesson, presents the curriculum, checks, tests and evaluates.

Instead of developing the faculties of thinking, providing conditions for their independent work and study, the emphasis is on teaching and memorizing the curriculum of some lessons. Teaching is organized in large groups, so that individuals are lost in crowd. Students rarely refer to joint working and collaboration. Competition between individuals is preferred. The request of pedagogy is that each individual develops according to his abilities and interests.

As much as we cherish cooperative work, students are even less able to learn on their own and to acquire knowledge. This work is more in a function of forming individualists. A teacher has a minimum of time to deal with individual students. He was not prepared for it. That is why the personal relationships between students and teachers are rare.

In this school, it is impossible to affirm the personality. Education comes down to mastering the curriculum of appropriate school subjects. The key to success is to remember as many facts as possible at the request of the teacher, and



reproduce them. Students are just quantity for their teachers. He distances himself physically from the students. He stands behind the rostrum, everyone looks at him and he has the control over everyone in the class. He monitors if they sit quietly, listen and obey his requests. Students are grouped in classes according to calendar age.

Modern school will succeed when the philosophy and practice are presented views that say that each man himself is an individual. An individual should develop into a person of unique spiritual quality. That is why the subject of education must be a specific man with all his qualities. That is a man as a subject of the education process, a person of a certain age, certain physical, educational, cultural, social and other characteristics. It's about personalities, which are conditioned by the action of the total, natural, economic, cultural and other conditions that need to be developed. Model of an inherited school produces emotional, social and pedagogical climate. It is characterized by excessive normativism, that is, a desire to regulate everything in it. In it, there are few conditions for actions stemming from students. They are asked to be quiet, obedient, and silent on demand and regulations. Opinions of students are rarely discussed and even more rarely acknowledged. They do not participate in organizing their life. Outer environment does everything for them and in behalf of them. During their schooling, children are educated as executors of external initiatives. These are conditions which produce a climate that narrows the scope for independence and students' activity. There is little space for thinking about independent decision- making. Nowadays, rarely anyone is working on creation the conditions for their self-expression. Teaching during which students spend most of the time listening exhausts the activity of a school. The teacher's role is not only manifested in monologues during the class, but also in other activities in which he is the main speaking- source.

Communication is limited at school. Space, the arrangement of things, the position of students is set more for the silence and isolation. Students look at each other's back, they do not talk to each other. They are listeners who remember teacher's words, answer questions, speak only when they are allowed. Both teachers and students at this school are isolated.

A school is an institution in which students' freedom is limited. It is full of warnings and bans. Everything that adults can do, students cannot: be in bad mood for learning, fail, make mistakes, have a different opinion, do what they want, do not do what they do not want, contradict. In such school, both students and teachers are exposed to many pressures. They do not feel free and they are insecure. They have a fear that they have not done something, that they can be punished. Their status and rights are under the rights of adults.

Inherited culture of school is mainly the cause of this condition. Its holder is a teacher. There are a lot of educated and autocratically mannered teachers (narcissistic, arrogant, craving power). They contribute to the formation of educational environment that affirms the teacher with an authoritarian style

according to whom everything is managed. These are people who have a need to manage young people, to dominate, and subjugate them.

In western societies, as well as in developing countries, criticism towards the traditional school is pointed out from all sides - from pupils, students, parents, business people, and politicians. The criticism is based on the recognition that schools are in the gap between many changes in society (cultural, economic, scientific and technological) which it cannot always follow, as well as needs and requirements of individuals which a school also cannot adequately recognize and meet. The traditional classical system of work in a school, its organization, curriculum, teaching methods, teacher-student relationship, the goals of education are not in line with the rapid changes in society, with demands posed by modern industry, science and technology. Therefore, alternatives to traditional school are looked for and the idea of a society without schools is initiated. Some scholars and critics see the overcome of this crisis of school in the abolition of school as an institution, development of unschooled society, while others see it in finding alternative ways, models of education without the abolition of school, development of networks and learning centres which are attached importance to by both formal and informal forms of education.

All these theories, although they have both advantages and limitations, have helped a deeper and clearer reflection of the serious weaknesses of education, and offered a certain perspective on the practical use of modern education (Banjanin, M., 1995).

Principals are one of the essential elements that participate in the organization of the educational work of a school. How a school will work depends a lot on the school principal who directs his activities and manages the school. In practice, there are various examples of school management. There are cases where a good teacher-educator proved to be a bad principal and vice versa.

## ***SCHOOL PRINCIPALS***

A school principal is the first man who is responsible for the management and administration of the school. School principals are elected from the ranks of teachers.

### ***A principal selection***

In the previous period, the selection of a principal underwent various changes by law regulations. From 1992 to 2002, a principal of an elementary school was able to have college or university education, while a principal of a high school had

to have higher education, as well as five years of work experience at school and a license. Since 2002, the requirement for principals in primary education has been changed and higher education has become obligatory.

According to the latest and currently valid Law on the Foundations of the Education System which went into effect on 11<sup>th</sup> September 2009, article 59, paragraph 4 prescribes, the following requirements for school principals are regulated:

- duties of a school principal may be performed by a person having appropriate education (acquired through second degree studies starting from 10th September 2005 and through initial studies lasting for at least four years, pursuant to the regulation regulating higher education until 10th September 2005) for a teacher, psychologist and pedagogue of that school;
- a license;
- undergone training and passed exam necessary for a principal;
- at least five years of work experience in the institution performing educational and pedagogical work and activities after acquiring the appropriate education.

There were cases that in some schools, during the competition for the selection of a principal, candidates with higher education were not interested in applying for that position. According to the article 59 paragraph 5 of the Law on the Foundations of the Education System, there is a possibility that if the candidate with higher education does not apply, the choice can be made among the candidates who have college education and ten years of experience in the field of education.

A selected candidate who has not passed the exam necessary for a principle is obliged to pass it within a year from the day he/she assumes duty. A principal who has failed to pass the exam necessary for a principal within one year from the day he/she has been appointed, is relieved of his/her duties. The principle is selected for a period of four years. The mandate of a principal begins on the day he/she assumes duty. The employment status of a principal where he/she has been working is put on hold during the first appointment period as a principal. The number of mandates of a principle is not limited by the valid Law on the Foundations of the Education System.

The managing director of an institution is elected by the managing body (9 members) on the basis of a publicly announced competition. The managing body consists of three representatives from each group:

- local self government unit,
- the employees and
- parents.

Before the principle is elected by the managing body, the opinion given by the pedagogical and educational council is obtained. The council's opinion is reached at a special session attended by all employees who vote for candidates by secret ballot. The managing body does not have to vote in the same way as the employees do.

In an institution in which educational and pedagogical work and activities are delivered in a language of a national minority, the managing body elects a principal after receiving an opinion of the corresponding national council of a national minority. The decision accompanied by documentation on the selected candidate is submitted to the minister for approval. The decision of the managing body on the appointment a principal is considered as final or as having received the minister's approval if within the period of 30 days from the day the decision is submitted the minister does not pass an official decision denying approval. After the prescribed period of time passes, the managing body passes an official decision appointing principal and submits it to the applicants. The official decision determines the time when the newly appointed principal is to assume duty and the responsibility of taking the exam for a principal. If the minister adopts a document denying approval to the decision on the appointment of the candidate, a new competition is publicly announced.

### ***Authority and responsibilities of a principal***

A person appointed as a principal receives a set of responsibilities and authorities and is on the position of a top manager of the school. Responsibilities and authorities of a principle are regulated by the article 62 of the Law on the Foundations of the Education System. The principal is held accountable for his/her work and activities by the managing body. Authority and responsibilities of a principal are:

- Plan and organize the implementation of the education and pedagogy program and all other activities of the institution;
- Ensure quality assurance, self-evaluation, achievement standards attainment and promote educational and pedagogical work and activities;
- Be responsible for the implementation of the development plan of the institution;
- Decide on the utilization of funds allocated in financial plan and be responsible for approving and utilizing of those funds, in accordance with the law;
- Cooperate with the local self government bodies, organizations and associations;
- Organize and perform pedagogical and guidance review and monitor the educational work and activities and pedagogical practice quality, and undertake measures aimed at improving and enhancing the performance of teachers, preschool teachers and psychologist/pedagogue;

- Plan and monitor competence improvement and conduct the title acquisition procedure for teachers, preschool teachers and psychologist/pedagogue;
- Take measures in case of violations of prohibitions as stated in Articles 44, 45 and 46 of this law and against indecent behavior of an employee and its negative impact on children and students;
- Undertake measures geared to the implementation of orders given by the education inspector and education advisor, as well as other inspection bodies;
- Ensure a timely and precise data entry and provide for the maintenance of an updated data base on institutions within a uniform information system of the ministry;
- Ensure timely information provision to employees, students and parents or caregivers, expert bodies and management bodies, on all issues of interest for the operation of the institution and these bodies;
- Convene and chair the meetings of the educational and pedagogical council, teacher council or pedagogical council, without a right to vote;
- Establish expert bodies and teams, direct and harmonize the work and activities of expert bodies within the institution;
- Cooperate with parents or caregivers of children and students;
- Submit to the managing body at least twice per year regular reports on his/her work and activities and the operation of the institution;
- Pass general documents on organization and classification of job positions;
- Decide on rights, obligations and responsibilities of students and employees in accordance with this law and the pertaining law.

### ***Termination of duties of a principal***

The duties and obligations of a principal ceases due to:

- personal request,
- mandate expiry,
- the termination of employment or by relieving him/her of his/her duty,
- emerging of conditions for the employment status to be put on hold.

The managing body relieves the principal of his/her duties if he/she is subject to a disciplinary procedure leading to employment termination due to an aggravated violation of work obligation prescribed for employees in Article 141 of the Law on the Foundations of the Education System or conditions for work contract termination emerges in keeping with general labor regulations.

The managing body relieves the principal of his/her duties if it has been ascertained that:

- the principle is responsible for the violation of work responsibilities which is defined by the article 141 of the Law on the Foundations of the Education System
- the principle is responsible for the violation of the Law on the Foundations of the Education System or a special law
- the principle has committed a criminal offence in the performance of his/her duties and obligations.

Election of a principal is defined not only by certain qualifications and other requirements as specified by Article 59 of the Law on the Foundations of the Education System, but also by specific personal qualities which candidate for a principal possess. Characteristics that a principal needs to have can be classified into the following four categories:

- pedagogical,
- psychological,
- moral,
- advantage over other candidates.

Pedagogical characteristics are related to the principal's permanent application of educational theory at school. The activities of a principal should be such that their action improves the quality of education at school. As a prerequisite for this is a good relationship and cooperation with the main factors (teachers, parents, students, school administration and local self-government).

Psychological characteristics are related to a serious knowledge of personality psychology. Personality psychology refers to the good knowledge of child psychology. Good knowledge of personality psychology allows the principal to understand students and employees more, and when there are some problems, he knows how to act and react (Vilotijevic, M., 1996).

Moral qualities include: personal responsibility, confidentiality, personal conduct, as well as creation, respect and maintaining good interpersonal relationships.

The advantages over other candidates that favour a principal in relation to the other candidates are:

- good organizational skills,
- developed creative skills,
- responsibility in carrying out educational work,
- positive personal results;
- positive business results;
- great readiness for dialogue;
- competence and human qualities;
- cooperation;
- authority;
- objectivity;
- influence.

## ***Principals' Training***

In addition to his/her own education (expertise in the subject he/she teaches), the person who is chosen and appointed at the position of a principal must have a multidisciplinary education. A man lives to learn! Practically, this means that the principal must work on his education every day and constantly improve himself/herself. In education, we have a constant influence from the outside by the development of technology and the advancement of technological progress. If the principle is educated and follows new technological developments, he/she will allow new technological developments and innovations enter the school much faster and more easily. In these cases, the school is an open form of an organization that is willing to accept and implement new ideas. There are also other types of principals who are not inclined to follow the changes in the environment and they accept the changes that occur in the environment with a lot of difficulties. In such schools, if educational work is analyzed, we can see that it does not provide quality improvement. School principals are teachers who were not prepared for administration and management of schools during their studies. Many authors report on the basis of examples from experience that it is better to be an average teacher, whom students will be remember by the appropriate level of knowledge and expertise, that a principal whom students and colleagues will remember by ignorance, disinterest, arbitrary and illegal operation. When assigned to this position, a person must know that his/her existing knowledge must extend in the field of:

- human resource management,
- management,
- economy,
- basic computer knowledge,
- legal frameworks and laws pertaining to the education process.

Principals who accept and expand their knowledge in the fields which are necessary for managing and operating a school become trained and, in that way, they manage the school better.

## ***A principal as a manager***

During the 1960s, the creator of the modern management Peter Drucer expressed his thought that a modern society or modern organization cannot exist unless there are managers who are able to control certain segments. That is where the definition of management arose, which can be translated differently- an ability

to lead people. A capable manager has a task of leading people to carry out their tasks, or achieving a common goal and success in the surroundings. What do school principals run? They direct teachers, students and other employees to organize classes as better as possible. As an ultimate goal or a final product is exactly the success of students and the education and knowledge that students acquire during their education. It is necessary to strive to that because the success is the best within the community, within the region and within the country (Vilotijevic M. 1996).

Management, translated in Serbian, means controlling and organizing. Management takes place in three stages:

- • the process of certain activities;
- • objectives of this process are reaching the ultimate organizational goals;
- • objectives are achieved by working with people, using different available resources.

Management is the process of planning, organizing, motivating and control towards achieving present goals of the school. Management is a universal activity and can be applied to all segments of a society and to the management of education (Banjanin M., 1995).

A Frenchman Henry Fayol is considered a pioneer and a founder who studies management theory. By profession he was a mining engineer, who later became general manager of the mine. At the moment of his appointment to the position of general manager, the mine had bad business results. The mine eradicated its poor results by a good way of management use and it managed its affairs well. By Fayol, there are five elements or functions of management and they are:

- planning;
- organization;
- command;
- coordination;
- control.

Planning represents a look into the future. Principals have to plan their future duties well. If they do not plan their duties they can be considered as incomplete managers.

We mean, under the term of organization, that the principal provides everything that is necessary for normal functioning of school. It is necessary to provide material, human resources, adequate teaching area, teaching equipment, fuel, etc. Command represents the way in which organization is accomplished. In other words, command represents directing of subordinates (principal's assistant, a secretary, pedagogue, psychologist, chief accountant, presidents of expert councils...). Coordination represents the next function of management by means of which duties and activities are coordinated in order to achieve set and wanted



goals. By control we check to establish if the things are realized in the way they were planned. Control can be:

- permanent;
- occasional (unexpected).

Permanent control by a principal as a manager can be done monthly, quarterly (at classification periods), at a half-year semester and at the end of a school year. Occasional (unexpected) control is done according to circumstances and a principal assessment, if he considers that some of the planned activities are not being done in the expected and planned way.

If we observe the Law on Primary System of Education and Upbringing, we can see that these five management functions are regulated by certain regulations, and that is showed in table 1. (The Law on the Foundations of the Education System, 2009).

*Table 1: Five Management Functions*

Management functions according to Henry Foyl	The Law on the basics of system of education and upbringing	Activities
Planning	49, 62. subsection 3. acts 1. 7.	Brings the development plan of the institution. Plans realization of educational and upbringing programme and all institutional activities. Plans expert improving.
Organization	62. subsection 3. act 1. 6.	Organizes realization of educational and upbringing programme and all institutional activities. Organizes pedagogical and instructive insight.
Command	59 subsection 1, 62 subsection 3. act 13.	Principal manages the school business. Forms expert bodies an teams.
Coordination	62. subsection 3. act 12. 13. 14	Manages the meetings of upbringing, educational, teaching council, in other words pedagogical council, without the right of making decissions. Directs and coordinates the work of expert organs in the institution. Cooperates with parents.
Control	62. subsection 3. act 2. 3. 6. 7.	Takes care of providing quality, self-evaluation, realization of achievement standards and advance of educational and upbringing work. Takes care of realization of development plan of the institution. Does pedagogical and instructive insight and follows the quality of educational and upbringing work and pedagogical practice and undertakes measures for progress and improvement of work of the teachers, educators and expert co-operators. Follows expert improvement.

## ***PRINCIPALS AND ETHICS***

Besides the previously mentioned characteristics that this work has dealt with, principals have to satisfy or to have and respect certain ethical principles. The following principles are important for principals:

- the principle of justice and righteousness;
- the principle of competition;
- the principle that work is the only source for improvement;
- the principle of measure and the right moment.

The principle of justice and righteousness represents the starting principle, which shows on its own example that justice and righteousness represent the basic elements which help a person to show its own work results that are accomplished with fair and legal work.

The principle of competition represents a large public race with the principals of other schools. Experiences have showed that there are examples of the fact that some principals haven't brought in any changes by coming to that function, while those who have done that record constant improvement and development in school work. Principals who constantly bring in changes can compete with other principals and in that way to improve the quality of education and upbringing of their schools. In those cases principals of such schools improve the success year in year out and set new goals for the next year that have to be achieved.

The principle of work is connected to the principle of justice and righteousness. This principle relates to the fact that principal's legal work brings prosperity, success and reputation. As the principal with honest, deserving work acquires reputation so school acquires a certain reputation and position in the area, the city or the state. There are also opposite examples where some headmasters went public for various affairs or missuses of official positions. Such principals lose reputation in society, and they are sometimes dismissed from principals' position for committed criminal offense. Unfortunately, that reflects on school, so that in such cases school with such principals can be characterized in that way and it loses its reputation and achieved position in society.

The principle of measure and the right moment is related on pronouncing the right measure in certain time moments. This term means the measure of reward and the measure of punishment. In school work and business it often happens that some employees have to be rewarded or punished. If the principals establish that there has been some bad work of certain school employees or that certain violations have been done they have to pronounce verbal or written warning or punishment. The pronounced measure has double effect. It affects a worker in question who has made a violation, and it also effects as prevention to other workers that do their job consciously and honestly. Such punishment can relate to reduction of a fine for the time period of several months. If the worker in its work achieves great success and

very good results, then a measure of reward or compliment can be pronounced to him. A compliment or a reward has a double effect, on the very employee and on all others who give their maximum in achieving work goals. The school in which the principal achieves the state in which warnings and punishments exist in a small number, and rewards and compliments record bigger success, he improves the quality of educational and upbringing work of that school.

Ethical requirement of a principal relates to the fact that education has to be accessible to all young people who will, through the learning process, be educated and recruited for their future employments. Principals have to provide equal education for everybody no matter of differences that exist between pupils.

Between principals and employees (superiors and subordinates) ethics has to exist and it is very important. In this case between a principal and employees, since they are in different feature of performing work (superior and subordinate), a principal has clearly to present working duties which he expects to be done by employees. It is expected from employees to preform given duties in the best possible way with the help of available resources.

If we observe school as an educational institution, we can come to a conclusion that the principal, employees and pupils make one family. The concern of the principal is to take care of every member of that family. Besides taking care of every member of the family, the principal has to treat employees and pupils equally, without putting some in the first and others in the second line.

Principals, while making decisions in their work and in order that these decisions are ethical, have to keep up to the following principles:

- an average employee must not be praised publically if the best employee was not praised;
- some small mistakes should be forgiven to a hardworking beginner;
- weaknesses that happen to an individual should be pointed out only to him;
- in work, only criteria that are the same for all employees and pupils should be applied;
- successes must not be ascribed only to oneself and failures to others.

## ***STANDARDS OF PRINCIPALS' WORKING COMPETENCE***

Standards of principals' working competence represent a set of knowledge, skills and attitudes that are necessary for performing principals' jobs. All knowledge, skills and attitudes that are important for principals' work are tried to be united in one document and in that way to show the important function of principals' work to the society. Standards of principals' work are divided on six areas and they include:

- managing the process of teaching and learning at school;
- development of a relationship with parents/guardians, management body and local community;
- planning, organization and control of the work of an institution;
- development and managing of human resources;
- financial and administrative managing of school work;
- providing legality of school work.

Standards are applied in the process of licensing a headmaster and they represent the starting document on the basis of which the training programme and the programme of exams for principals should be done. The main goal of existing of standards is exactly the improvement of work quality of principals, or in other words the improvement of educational and upbringing quality in school work.

In order to become a principal, one does not only have to be a good teacher, that is to know the subject that he teaches, but also he has to be a good pedagogue, psychologist, economist, counselor, PR, to be informatively literate, to follow every pupil and to improve oneself constantly. All of this the future principals have to prove with the help of their files, they have to prove that they know how to work before they take place of a principal. This method of licensing principals represents and proves that somebody is capable and has affinity to lead school. Leading school (pupils and employees) is not at all an easy and simple duty.

New principals, that have been elected, will have one year to pass the exam for a license, while principals, who have been already on that position, will have the time-limit of two years. Defined standards are not at all naïve, on the contrary they are very demanding there will probably be those who will get frightened and give up.

A principal who applies for taking a license exam will have to bring his file or in other words to prove that he fulfills all previously mentioned standards. Delivered files will be examined in order to establish if the principal has delivered complete and necessary documentation which proves the realization rate of defined standards. When it is established that the documentation is all right then the principal can apply for the license. The next step is that the counselor of the Ministry of Education, Science and Technological Development comes to a school in person and establishes if that what is stated in the files identical with the real

situation at school. The counselor checks and establishes if the facts that are stated in documentation are exactly the same. In the conversation with employees, pupils, members of the School Board, parents, representatives of local authorities, he creates a picture and a file what is the real and objective state in that school. If the counselor's report is positive, only then the principal can take the license exam.

Within these six areas of principals' standards there are the following standard groups that are showed in table 2.

*Table 2: Standard areas*

Standard areas	Types of standards
MANAGING THE PROCESS OF LEARNING AND TEACHING	<ol style="list-style-type: none"> <li>1. Development of learning culture.</li> <li>2. Making conditions for pupils' development.</li> <li>3. Development and providing the quality of teaching process at school.</li> <li>4. Providing inclusive approach in learning and teaching.</li> <li>5. Following and encouraging pupils' achievements.</li> </ol>
DEVELOPMENT OF RELATIONSHIP WITH PARENTS/GUARDIANS, THE MANAGEMENT BODY AND WIDER COMMUNITY	<ol style="list-style-type: none"> <li>1. Cooperation with parents/guardians.</li> <li>2. Cooperation with the management body of the school.</li> <li>3. Cooperation with state and local authorities.</li> <li>4. Cooperation with wider community.</li> </ol>
PLANNING, ORGANIZATION AND CONTROL OF INSTITUTION WORK	<ol style="list-style-type: none"> <li>1. Planning of institution work.</li> <li>2. Organization of the institution.</li> <li>3. Control of institution work.</li> <li>4. Managing informational system of the institution.</li> <li>5. Managing the system for providing quality in the institution.</li> </ol>
DEVELOPMENT AND MANAGING OF HUMAN RESOURCES	<ol style="list-style-type: none"> <li>1. Planning, selection and admission of employees.</li> <li>2. Professional development of employees.</li> <li>3. Managing interpersonal relationships.</li> <li>4. Evaluation of work results, motivation and rewarding of employees.</li> </ol>
FINANCIAL AND ADMINISTRATIVE MANAGING OF INSTITUTION WORK	<ol style="list-style-type: none"> <li>1. Managing financial resources.</li> <li>2. Managing material resources.</li> <li>3. Managing administrative processes.</li> </ol>
PROVIDING LEGALITY OF INSTITUTION WORK	<ol style="list-style-type: none"> <li>1. Knowledge, understanding and following of relevant regulations.</li> <li>2. Creation of common acts and documentation of the institution.</li> <li>3. The use of common acts and documentation of the institution.</li> </ol>

## ***A QUALITY PRINCIPAL- A QUALITY SCHOOL***

The work results, and of course the quality of educational and upbringing work of school, often depend on the principal's work in the first place. Expertise, pedagogical characteristics of a principal, as well as having certain organizational abilities represent the basic preconditions for school to make good work results or the best quality possible.

A principal in his annual plan of work as one of activities has a visit to teachers' classes. Some principals do not practice this activity but it is for them a dead letter. Such principals have the attitude that they are primarily experts in their area/subject and that visiting some other classes that they are not experts for, is a complete failure. Still visiting of the class for which the principal is not competent cannot and should not be observed in this way, but by visiting other classes the principal can establish what the communication in the class is like, cooperation between pupils and teachers, teachers' motivation, pupils' work in the class, etc (Vilotijevic, M.,1996).

With the annual work plan of the principal it is necessary to plan and visit during one half-term at least once all the teachers who accomplish educational and upbringing work at school. If the principal practices and conducts this activity of visiting teachers' classes, then he can come to some information about the teachers' work and the work of the classes by himself, and not to receive that information from some other resources. The very visiting of classes by the principal has a preventive effect. In later conversation between the principal and teachers, the principal can suggest what he has noticed as irregularities or weak points in the class, so that the teacher could remove that in farther work. The principal also points out good things, which he has noticed in the class, to the teacher and in that way he motivates the teacher to work even better. Visiting the classes by the principal is considered as a waste of his time by some people, or in other word that is the way to shorten the principal's daily working hours. On the contrary, by visiting classes the principal writes down all good activities and creates the so called collection of examples of good school practice. Later on the collection of examples of good practice can serve to new colleagues to introduce them to work or as a help to teachers who have some problems in conducting classes (Funda D., 2008).

During visiting classes the principal has to be a silent observer. The principal does not involve himself in the work of teachers and pupils, but he listens carefully and does not disturb their work. From the moment he enters the class not only does he observes teacher's talk but he also observes if the teacher has mentioned the aim of the class, if the teaching unit is elaborated with a few, enough or a lot of facts, if the curriculum correspond to pupil's age, teacher's movements and other things.

Basic elements that are important for evaluation of the class quality are the following:

- clearly pointed out the aim of the class;
- clear teacher's expose;
- neatly conducted blackboard;
- pupils' activity in the class;
- if the pupils' interest is aroused;
- if the pupils are active or passive listeners;
- communication in the class ( one-way or two-way);
- the use of teaching resources, experiments;
- the pupils' ability for independent work;
- pupils' identification with difficulties in learning;
- assigning of homework.

At the complete class analysis all mentioned elements have to be observed. The principal, after visiting the planned classes during a half-term, can make a half-term report about this activity. The purpose of making such report is corrective and preventive. At making a half-term report of visiting classes it is also necessary to do SWOT analysis and to determine:

- the power of visited classes;
- the weakness of visited classes;
- threats;
- environment possibilities.

As power, important characteristics that improve dimension of school quality and make school competitive in relation to other schools are stated. As for weak points of a school it is necessary to emphasize and define them, or to aspire to reduce them to minimum and to try not to repeat them in the next period, because they have the opposite effect on the quality of school work. Threats in this case represent influences that happen in the environment and have a negative effect on class realization. Environment possibilities give the chance to the principal to help the teachers in realization of certain teaching units in the best possible way. Namely, some teaching units are very hard for realization with the help of teaching resources, schemes or computers. It is usually about big, complex systems. The role of the principal is that in agreement with the directors of those systems enables visits to those who are in close environment in order for pupils to see the concrete curriculum from those teaching units (Pasturovic N., 2009).

## **CONCLUSION**

The main strategic aim of a school is realization of the best possible quality of teaching process, or to be the leading one among competitive schools. By the reform of education, since the beginning of school year 2014/15, schools will be financed according to number of enrolled pupils. Schools that have a better quality of the teaching process will certainly have more pupils. There will also appear a larger number of pupils who want to enroll a school with better reputation. Managing school by the headmaster has the key role in improvement and constant progress of quality in educational and upbringing work. Principals who besides pedagogical, psychological and methodological knowledge, complete it with knowledge from management area, from managing human resources and new technologies, will be right and good people who can lead school towards better quality. Schools that are open, where principals accept changes willingly, innovations and new technologies will have a constant progress and improvement of the quality of the teaching process.

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# **THE APPLICATION OF A MODIFIED SERVQUAL MODEL IN EVALUATION OF THE QUALITY OF EDUCATIONAL SERVICES**

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## **Abstract**

*The success of today's organizations largely depends on the quality of products (services) they produce (provide). The quality is determined by a customer and not a manufacturer, so the knowledge of a user's needs is essential for the quality evaluation. Education is one of the most challenging areas for the implementation of quality improvement and that is why today's higher education institutions must focus their activities on understanding their customers' needs and on fulfilment of their expectations.*

*This paper presents the results of research aimed at measuring the service quality provided in a higher education institution. The model for measuring service quality is made on the basis of the SERVQUAL model.*

*On the basis of the application of this model of measuring service quality in higher education institutions, we can conclude what the services provided by higher education institutions are like, what is wrong with them and what we can improve in order to satisfy the customers (students).*

**Key words:** *education, higher education institutions, quality, SERVQUAL.*

## **INTRODUCTION**

Business access of modern organizations which deal with services has changed a lot recently. The reason for this change lies in the development of the service economy, because the market situation shows that the most successful organizations are the ones that take care about the service quality they provide but also about the users' satisfaction.

Industrial economy is dominated by the orientation towards manufacturing, while service-based economy is distinguished by relationships themselves that are established between the user and the service provider. Service quality is very important in the service economy, while, in the industrial economy, users' standard is measured by the quantity of products which are available to them.

Examples of service activities are: finance, insurance, transportation, wholesale, education, health and social services, marketing and other business support services, recreation, culture, etc.

The goal of higher education institutions is to deliver added value to its users by improving the overall performances of the organization. Today's environment of higher education institutions is subject to changes which bring an increase in students' demands. Expressed competitiveness in attracting new students indicates that the development of connections with students is strategically important in the process of students' enrolment.

Ensuring the quality of teaching process in higher education institutions is a necessary precondition for their effective functioning and survival at the educational services market. Students, as direct users of the teaching process, have an important role in quality assurance. Students' satisfaction with the quality of teaching process, as well as the quality of a higher education institution itself can be measured by various methods. Most widely used ones are surveys and interviews.

One of the most commonly used models for measuring service quality is SERVQUAL (Parasuraman, Zeithaml & Berry, 1988).

## **THEORETICAL BACKGROUND**

There is no a single and universally accepted definition of the concept of quality. In most definitions, quality is considered to be a *multi-dimensional concept*, which creates the possibility that one part of a product / service can be of *high* quality, and the second part of *low* quality (e.g. Feigenbaum, 1961, 1991; Garvin, 1987). However, *the dimensions of quality* vary depending on the given context, and only a small number of quality models combines global, generally accepted dimensions, which are independent in the observed category of products

or services (One such attempt of generalization of quality dimensions for service industries is SERVQUAL model (Parasuraman *et al.* , 1985, 1988).

As a term, quality is often used in everyday life, and everybody has a good idea of what is good and what is bad quality (Marinkovic & Senic, 2012). It is interesting that, in spite of such widespread use, researchers have not managed to find a single definition of quality yet, primarily because the quality, as a concept, is related to a number of interpretations (Garvin, 1984).

Quality means value, suitability of a thing, its appropriateness for specific requirements, standards (the quality of natural materials, the quality of industrial products, the quality of merchandise and the quality of technical and artistic works) (Kondic, 2002).

Quality goals must be:

- specific
- measurable
- achievable
- relevant and
- time bound

Quality represents a customer's satisfaction and convenience for use (Juran, 1993). Quality is defined as compliance with the requirements (Crosby, 1995), and there are also opinions (Cruchand, 1995) that the quality is a desire, seduction, pleasure and enchantment, too, and that it often induces us to choose one product instead of another and one service instead of another.

According to Kotler's definition, a service is any activity or benefit that one party offers to another, and which is essentially intangible. It results in no property ownership and it might or might not be related to a physical product (Kotler, 1988).

When it comes to education, we can say it has an important function in any society. The century we live in is declared as "the era of knowledge". According to many authors (M. Hamm Cornel LB & Daniels, 1979), **education** is a **normative** concept because it implies a conceptual link between learning and the thing which is valuable.

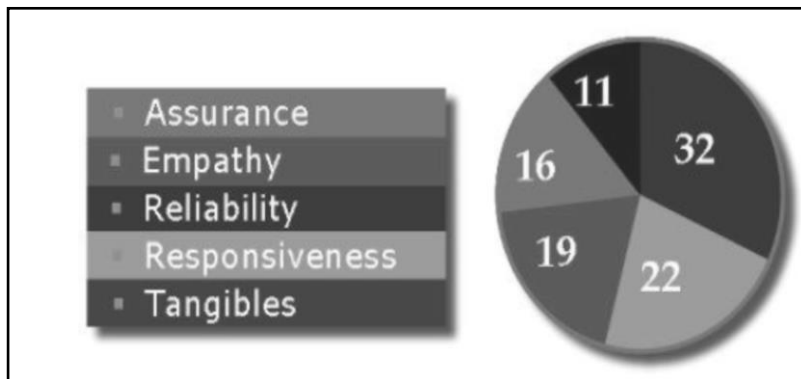
The quality of education is a multidisciplinary concept. It is a layered and dynamic concept that relies on a model of education, mission and aims of the institution, as well as the specific standards of a given system, institution, study program, or a discipline being studied (Randic & Antic, 2009).

One of the most commonly used methods for determining users' satisfaction with service quality which was developed as a model for determining discrepancy in 1985 in U.S. by Parasuraman, Zeithaml and Berry, and on the basis of which a technique of service quality measurement was developed in 1988, is SERVQUAL (Swarbrooke & Horner, 1999). SERVQUAL was designed to measure the service quality in the most diverse organizational models of service sector: sale of tires,

dental care, hospitality, travel and tourism, car servicing, business schools, higher education, hospitals, accounting firms, banks, government institutions, logistics, etc. (Parasuraman et al. 1985, 1988)

Original version of the SERVQUAL measurement instrument contained ten dimensions of service quality: reliability, responsiveness, competence, access, courtesy, communication, credibility, security, understanding / knowing the customer, tangibles. In 1988, ten components were reduced to five major dimensions: reliability, assurance, tangibles, empathy, and responsiveness. This scale is often cited in the literature as an acronym RATER scale: Reliability, Assurance, Tangibles, Empathy, and Responsiveness. These groups of quality components are further decomposed to 22 categories.

*Figure 1: SERVQUAL– Rater*



Source: [www.serviceperformance.com](http://www.serviceperformance.com)

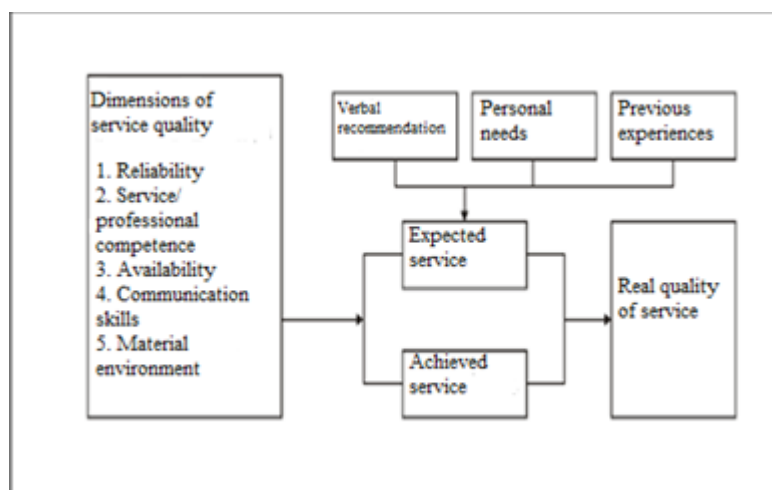
Parasuraman and his colleagues, developed GAP model of service quality:

$$SQ = \sum_{j=1}^k (P_{ij} - E_{ij})$$

**SQ** -service quality

**P<sub>ij</sub>** (perception) – perception of performances of stimulus **i** under the influence of attribute **j**

**E<sub>ij</sub>** (expectation) – expected service quality for attribute **j** in relation to set standards for stimulus **i** (Veljkovic,2007).

*Figure 2: SERVQUAL model*

*Source: / According to Parasuramann A., et.,al (1985).*

We can safely say that the SERVQUAL model which is used at service companies can help them understand perceptions and expectations of users more easily.

According to this model, service quality is a function of users' perception, that is, the way he saw and experienced the service, and expectations which he formed before the purchase or use of the service (Parasuraman, 2005).

SERVQUAL model is standardized on 5 individual determinants of service quality for measuring customers' expectations and their perception: reliability, responsibility, safety, empathy, tangibility (Veljkovic, 2007). The goal of implementation of SERVQUAL model is to point out the difference between expected and obtained service and to determine the differences (gaps) between them. Five gaps can be identified in SERVQUAL.

The main gap is consumer GAP which is a result of one of four gaps which appear due to variations in some stage of creating and delivering services to customers.

Using gap-conceptualization of service quality and on the basis of the fifth gap (the gap between expected and perceived service), Parasuraman et al. (1985.) conducted an exploratory research in which they identified 10 general components of service quality.

In 1988, the same authors presented SERVQUAL, in which 10 components of service quality were reduced to five (1. tangible elements / physical environment, 2. reliability, 3. responsibility, 4. safety and 5. affability) which are measured by using 22 questions (Parasuraman et al., 1988). In 1991, they made small changes in the part of measuring customers' expectations (Parasuraman et al., 1991), and in 1994, the number of questions relating to perceptions and expectations was decreased to 21 (Parasuraman et al., 1994).

## ***SERVICE QUALITY IN HIGHER EDUCATION***

Key features of the service provided in the system of higher education (Lazic, Markov, 2011) are:

- Service in higher education is intangible, has an immaterial character and involves the transfer of a defined level of knowledge and education of teachers to students over a longer period of time.
- Educational service is perishable, so we cannot store it or stockpile it, because its consumption must occur right at the moment of its production.
- Heterogeneity in the quality of these services is much expressed because it is impossible to maintain a completely identical level of quality in a number of higher education institutions that deal with the same subject of study. If we mention that teaching is often implemented by a number of professors and that it is repeated from year to year, then we conclude that the same level of quality cannot be provided, even in the realm of a higher education institution.
- During the realization of the educational process, participation of both sides is required due to simultaneity and inseparability of production and consumption process. In the premises of the institution, the defined level of knowledge is transferred from teachers to students, that is, "production of educational services". In this way, students renew and extend the overall system of their own education, which is manifested as a "consumption of educational service".
- In spite of the fact that a student pays the cost of educational services in the form of scholarships, he/she cannot acquire ownership over the capacities of the educational institution, but only has the right to receive pre-defined and well-known package of services.

The quality of teaching process in higher education institutions is a necessary condition for their good functioning and survival at the market of educational services.

The appearance of the Bologna Declaration has contributed to overcoming the problems of higher education in Europe, such as the lack of flexibility, poor mobility of students and poor reaction to market demands.

In previous models of education, teachers were in the centre, while Bologna process brings an entirely different approach; students are in the centre of the events. All the processes that take place in colleges and universities are in the service of learning, acquiring knowledge and mastering skills.

The role of students in the activities of quality assurance is indicated in European quality standards for higher education. Involving students in the quality of teaching process is possible with the help of a survey which is conducted among students. On the basis of that survey, we can reach some indicators of the quality of

individual elements of the teaching process. Students are asked questions about the organization of study programs, quality of teachers, and the organization of teaching in individual subjects. On the basis of students' answers, the institution receives feedback about the course of teaching activities.

The dynamic environment of higher education points out several features of this sector (Maring, Gibbs, 2009):

1. The complexity of the "educational product" - higher education creates a complex "product", combining education and development experience in order to train its students for the benefit of society.
2. Complicated social role of educational institutions – college independence and complexity of their work, complicates adding value through changes that occur in practice, and often require large investments (DLS, outsourcing, "special programs"). Sometimes, the mission of the institution is at odds with its behaviour. In that case, changes which are initiated by a complex social role of an educational institution should follow.
3. The importance of financial characteristics in a different educational system - institutions need to "shape" the market offer that will attract investments, specifically future students (i.e. scholarships, research, donors, and other sources). These financial resources are key institutional "customers" and they invest in areas that they believe will provide a product / service that suits them.
4. Competition and competence - the benefits from the market mechanism are functional diversity and a large variety of programs. Diversity, as a task of any educational institution, is binding, if we take into account the heterogeneity of the market. Difficulties in the realization of that goal arise when the institution, encouraged by the market, gives priority to short-term income maintenance rather than long-term reputation maintenance. The impact of globalization directly touches higher education institutions, encouraging reduction of their national structure and their harmonization with established quality standards (Bologna Declaration 2000). Planning of competence helps in assessing and control if money is invested in education in order to create a coherent system focused on students.

## **MEASURING SERVICE QUALITY BY SERVQUAL MODEL ON THE EXAMPLE OF FACULTY OF BUSINESS ECONOMICS AND ENTREPRENEURSHIP, BELGRADE**

### ***The model description***

The framework of higher education system in the Republic of Serbia was established by the Law on Higher Education, in accordance with the Bologna process. From the standpoint of quality assurance, this law defines the procedure of accreditation of higher education institutions and study programs as well as the procedure of self-evaluation and external review.

Each institution adopts its own *Rules* and regulations on *standards for self-evaluation and quality assessment* and uses them to establish a quality management system, i.e. minimum quality standards in all areas of the activities of the institution, as well as procedures which provide that quality.

In order to properly ensure the implementation of quality, a higher education institution must understand the needs of its users and know what expectations are. Measuring service quality in higher education institutions is very important for further implementation of the quality strategy. Most higher education institutions included service quality in their consideration by the application of SERVQUAL model, whose focus is on user expectations and on what is delivered. SERVQUAL model shows the difference between the expected and received services. On the basis of those differences (gaps) between them, five gaps can be identified in SERVQUAL.

The first gap is between customer's expectations and management perceptions. It occurs as a result of not understanding customers' expectations and can be reduced by measuring customers' satisfaction, better communication with customers, accepting customers' suggestions, etc.

The second gap occurs when managers of an organization know what customers want but they are unable to fulfil their wishes due to various inabilities. This gap occurs between management perception and service quality specifications. It occurs due to a lack of commitment to service quality, lack of process standardization, lack of feasibility perception. Insufficient quality of the delivered service may occur if organizations simply do not want or do not have the funds to invest in equipment or people.

The third gap arises from the difference between the quality specifications and the service that is provided. It is also known as the service performance gap. This gap occurs when organization management understands what needs to be done in order to provide good quality services and when there are possibilities to provide them in the best way, but the employees are the ones who are not able to provide



those services properly or simply they do not want to provide them. This gap is the gap of “the moment of truth”, because it occurs during the interaction of customers and service providers. The role of human resource management is very high in overcoming this gap. If the employees in an organization are properly motivated and we invest in their continuous improvement, we will create conditions in which they will provide services that are of quality and at a high level.

The fourth gap occurs when there are differences between the provided service and external communication, that is, when an organization promises more in external communications than it is able to provide. The lack of consistency also has the impact on the appearance of this gap.

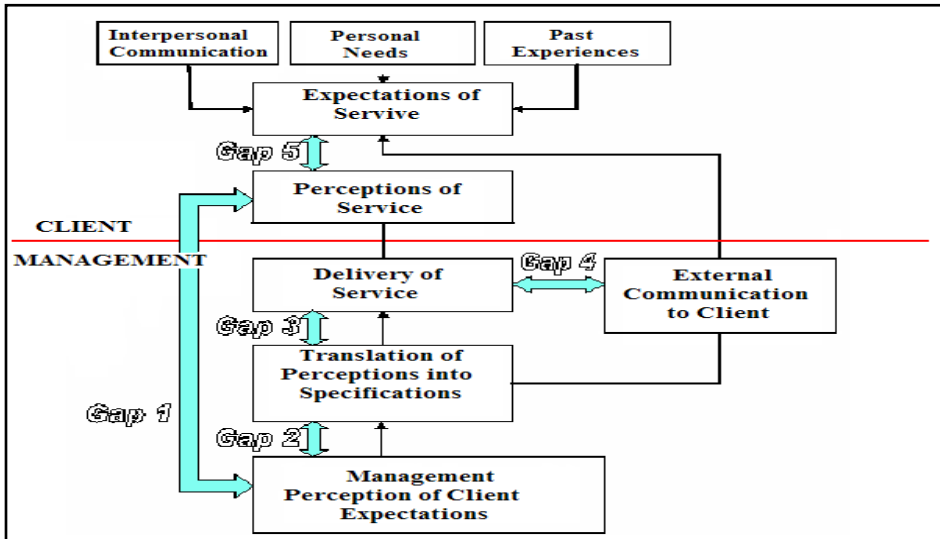
The fifth gap is the difference between expected and obtained services, i.e. their quality. When the customer receives less than he/she expects, it results in his/her dissatisfaction with the obtained service.

A **Likert scale** with seven levels is commonly used for measuring perceptions, where a response "strongly disagree" (1) is at one end of the scale, and on the other end, there is a response "strongly agree" (7). The data from these questionnaires are processed and analyzed by using appropriate statistical techniques, which helps us get a quantified score that defines the level of service quality. This result, as well as partial results by categories and groups of quality components, may be useful for defining appropriate corrective actions which would improve the efficiency of the service companies (Kancir, 2006).

The application of SERVQUAL measuring instrument - SERVQUAL instrument can be used in any service activity after it is adjusted to a certain organizational framework (Asubonteng, McCleary, Swan, 1996).

The definition of quality in SERVQUAL model is based on a comparison of expected and obtained through observation of gaps that occur in the process of providing services. We can see a graphical display of gaps in the following figure:

*Figure 3: Quality in services model*



Source: Parasuraman, Zeithaml and Berry (apud SALOMI, 2005).

**Table 1: Five gaps of SERVQUAL model**

<b>GAP 1</b>
What is it?
GAP 1 is the discrepancy that can exist between the perception of executives and the real expectations of consumers.
What causes it?
Management's failure to correctly identify client expectations.
How to correct it?
Open formal and informal channels of communication from the clients to the top, passing through the people in contact with the public; better market surveys on service quality and apply them with greater frequency, and; reduce hierarchy levels.
<b>GAP 2</b>
What is it?
GAP 2 is the discrepancy between management's perception of client expectations and the specifications of service quality, that is, it is the supply of low quality even though the company has appropriate procedures.
What causes it?
Limited resources, lack of operational tools to bring the client's voice to service specifications; management's indifference and rapid change in market conditions.
How to correct it?
Management's commitment; Make resources available and use tools to bring the voice of the client to specifications (for example, QFD – Quality Function Deployment)
<b>GAP 3</b>
What is it?
GAP 3 is the discrepancy between service quality specifications and the service actually delivered.
What causes it?
Lack of knowledge about specifications, lack of ability to carry out the specified or lack of commitment by collaborators.
How to correct it?
Make specifications known, ensure the necessary profile of the collaborator at recruiting or complete it with training; and assess collaborator performance through greater and better supervision or improvements in team work and in the organizational climate.
<b>GAP 4</b>
What is it?
GAP 4 is the discrepancy between the service's specified quality and what the company communicates externally.
What causes it?
Lack of communication and the client does not know what to expect or more is promoted than actually delivered.
How to correct it?
Improve the communication between the diverse sectors of the company and between it and the target public for the communications or hold communication to what is actually delivered.
<b>GAP 5</b>
What is it?
GAP 5 is the difference between what the client expects and what the company actually delivers.
What causes it?
A gap or a series of gaps from 1 to 4.
How to correct it?
Correcting those gaps with problems.

*Source: Adapted from Satolo et al. (2002)*

For SERVQUAL methodology, we need to formulate 22 pairs of questions; first, respondents are asked a series of 22 questions before using the service, through which expectations are measured, and then, after using the service, the second series of 22 questions according to listed categories, through which experience and perceptions (attitudes) of the user about the finished service are measured.

The table 2 shows the original version of SERVQUAL questions.

*Table 2 : Original version of SERVQUAL model*

	Expectations	Performance
Tangibility	<p>It should possess modern equipment.</p> <p>Physical installation should be visually pleasant.</p> <p>Employees should be properly dressed and clean.</p> <p>The look of physical installation of a company should be preserved in accordance with the services offered.</p>	<p>XYZ has modern equipment.</p> <p>Physical installations are visually pleasant.</p> <p>The employees of XYZ are properly dressed and clean.</p> <p>The look of the physical installation of a company XYZ is preserved in accordance with the services offered.</p>
Reliability	<p>When a company promises to do something in a certain period of time, it must be so.</p> <p>When customers have a problem with a company, the company should be solidary and make the customers feel safe.</p> <p>The company should be trusted.</p> <p>It should provide services in the promised deadline.</p> <p>It should keep their records properly.</p>	<p>When a company promises to do something in a certain period of time, it is so.</p> <p>When customers have a problem with XYZ company, it is solidary and makes the customer feel safe.</p> <p>XYZ company is a company one can trust.</p> <p>XYZ provides services in the promised deadline.</p> <p>XYZ keeps their records properly.</p>
Responsibility	<p>One should not expect the company to inform customers exactly when the service will be provided.</p> <p>It is not always reasonable to expect immediate availability of staff.</p> <p>Employees needn't always be able to help the customer.</p> <p>It is normal that employees are sometimes too busy to respond to requests immediately.</p>	<p>XYZ does not inform customers exactly when the service will be provided.</p> <p>XYZ does not always expect immediate availability of staff.</p> <p>The employees of XYZ are not always able to help the customer.</p> <p>The employees of XYZ are always too busy to respond to customers' requests.</p>
Safety	<p>Customers should be able to trust the employees of the company.</p> <p>Customers should feel safe when they negotiate with the employees of the company.</p> <p>Employees should be polite.</p> <p>Employees should be adequately supported by the company so they could carry out their duties properly.</p>	<p>Customers trust the employees of XYZ company.</p> <p>Customers feel safe when they negotiate with the employees of XYZ company.</p> <p>The employees of XYZ company are polite.</p> <p>The employees of XYZ company do not have an adequate support by the company so they could carry out their duties properly.</p>

Empathy	<p>It should not be expected from a company to pay special attention to each customer.</p> <p>It should not be expected from employees to pay special attention to each customer.</p> <p>It is absurd to expect that employees know what customers' needs are.</p> <p>It is absurd to expect that these companies have the benefit of customers as a goal.</p> <p>It cannot be expected that work hours fit each customer.</p>	<p>XYZ does not pay special attention to each customer.</p> <p>The employees of XYZ do not pay special attention to each customer. The employees of XYZ do not know what customers' needs are.</p> <p>XYZ does not have the benefit of customers as its goal.</p> <p>Work hours of XYZ company do not fit each customer.</p>
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*Source: Oliveira (2008)*

A Likert scale of seven degrees with the answers such as "strongly disagree" (1) to "strongly agree" (7) was used in this paper. Then, those data were processed and analyzed and we got a quantified result which defined the level of service quality.

### ***THE MODEL IMPLEMENTATION AT THE FACULTY OF BUSINESS ECONOMICS AND ENTREPRENEURSHIP***

By using a modified SERVQUAL model in Higher Education, we wanted to do a research on students' expectations and perception. The research was done with the students of the Faculty of Business Economics and Entrepreneurship in Belgrade. The survey involved 42 students who enrolled in the Faculty of Business Economics and Entrepreneurship and still have not had a contact with the teaching process as well as 57 senior students who previously had a contact with the school and the teaching process. The first part of the questionnaire was related to the students' expectations and had five dimensions (tangibility, reliability, responsibility, safety, and empathy). This questionnaire had 19 questions.

The second part of the questionnaire referred to students' perception measurement, i.e. the quality of obtained service.

*Table 4: SERVQUAL questions adapted for the College for Business Economy and Entrepreneurship*

	Expectations	Performance
Tangibility	<p>1. A good higher education institution should have modern equipment</p> <p>2. Physical installations of higher education institutions should be visually pleasant</p> <p>3. The employees of higher education institutions should be properly dressed and clean</p> <p>4. The look of the physical installation of higher education institutions should be preserved in accordance with the services offered.</p>	<p>1. Faculty of Business Economics and Entrepreneurship has modern equipment</p> <p>2. Physical installations of the Faculty of BE and Entrepreneurship are visually pleasant</p> <p>3. The employees of the Faculty of BE and Entrepreneurship are properly dressed and clean</p> <p>4. The look of the physical installation of the Faculty of BE and Entrepreneurship is preserved in accordance with the services offered.</p>
Reliability	<p>5. When an excellent higher education institution promises to do something in a certain period of time, it must be so.</p> <p>6. When a student has a problem, a good higher education institution shows a sincere interest in its solving</p> <p>7. An excellent higher education institution does its job at the right time and without a mistake</p>	<p>5. Faculty of BE and Entrepreneurship fulfils its promises in the promised deadline</p> <p>6. When you have a problem, the Faculty of BE and Entrepreneurship shows a sincere interest in its solving</p> <p>7. Faculty of BE and Entrepreneurship does its job at the right time and without a mistake</p>
Responsibility	<p>8. Employees and teachers in excellent higher education institutions promise their clients services in time in which they are able to fulfil</p> <p>9. Employees and teachers in excellent higher education institutions are always available for their students.</p> <p>10. Employees and teachers in excellent higher education institutions will always show good will to help their students.</p> <p>11. Employees in excellent higher education institutions are always ready to explain if their students have any dilemmas.</p>	<p>8. Employees and professors at the Faculty of BE and Entrepreneurship fulfil their services in promised time</p> <p>9. Employees and teachers at the Faculty of BE and Entrepreneurship are always available for their students.</p> <p>10. Employees and teachers at the Faculty of BE and Entrepreneurship show good will to help their students.</p> <p>11. Employees and teachers at the Faculty of BE and Entrepreneurship are always ready to explain if their students have any dilemmas.</p>

Safety	<p>12. The behaviour of employees and teachers in an excellent higher education institution must instil confidence to students</p> <p>13. Students at excellent higher education institutions feel safe in their affairs with the institution.</p> <p>14. Employees and teachers in excellent higher education institutions must be polite to their students.</p> <p>15. Employees and teachers in excellent higher education institutions must have knowledge needed for answering to students' questions.</p>	<p>12 – The behaviour of the employees and teachers at the Faculty of BE and Entrepreneurship instils confidence.</p> <p>13. You feel safe in your affairs with the Faculty of BE and Entrepreneurship.</p> <p>14 – The employees and teachers of the Faculty of BE and Entrepreneurship are polite.</p> <p>15 – The employees and teachers at the Faculty of BE and Entrepreneurship have knowledge needed for answering to students' questions.</p>
Empathy	<p>16 – An excellent higher education institution must have work hours acceptable for all students.</p> <p>17. An excellent higher education institution must have employees and teachers who pay individual attention to each student.</p> <p>18. An excellent higher education institution must be focused on the best service for its students.</p> <p>19. An excellent higher education institution must understand specific needs of its students.</p>	<p>16. Faculty of BE and Entrepreneurship has work hours acceptable for all students.</p> <p>17. Faculty of BE and Entrepreneurship has employees and teachers who pay individual attention to each student.</p> <p>18. Faculty of BE and Entrepreneurship is focused on providing the best service to its students.</p> <p>19. Faculty of BE and Entrepreneurship understands specific needs of its students.</p>

*Source: Authors adaption according to Oliveira (2008)*

On the basis of the data obtained by using a modified SERVQUAL questionnaire, we found out that there are five gaps (differences in perception - expectation, "service quality gap") in students. The research can provide management schools with the information to which extent the service provided at school coincides with the students' expectations. This information is very important for constantly monitoring and improving the quality of services provided.

"Face to face" technique was used in this survey; students were given questionnaires when they enrolled in school and also during their certification of term.

## FINAL RESULTS OF THE RESEARCH

*Table 5: Average ranges of students' expectations and perceptions*

		Expectations (E)								Perceptions (P)							Average (P-E)	
		Range							Average	Range								Average
		1	2	3	4	5	6	7		1	2	3	4	5	6	7		
TANGIBILITY	1	0	0	2	4	16	13	7	<b>5,45</b>	0	6	10	13	1	1	8	<b>4,56</b>	-0,89
	2	0	0	2	4	11	16	9	<b>5,62</b>	0	5	17	13	5	1	6	<b>4,31</b>	-1,31
	3	7	9	9	5	6	0	6	<b>3,42</b>	0	2	6	8	1	2	8	<b>5,19</b>	1,77
	4	3	4	4	5	11	9	6	<b>4,61</b>	0	4	4	13	1	1	7	<b>4,89</b>	0,28
<b>Average tangibility= -0,04</b>																		
RELIABILITY	5	0	0	5	5	10	12	10	<b>5,40</b>	0	0	0	14	1	1	1	<b>5,45</b>	+0,05
	6	0	3	3	8	10	9	9	<b>5,09</b>	0	0	5	13	1	1	1	<b>5,28</b>	+0,19
	7	4	2	5	7	8	8	8	<b>4,64</b>	0	0	8	16	1	1	8	<b>4,91</b>	+0,27
<b>Average reliability= +0,17</b>																		
RESPONSIBILITY	8	0	0	7	5	8	12	10	<b>5,30</b>	0	0	2	1	1	1	1	<b>5,43</b>	+0,13
	9	0	3	2	5	6	12	14	<b>5,52</b>	0	0	0	1	1	1	1	<b>5,58</b>	+0,06
	10	0	0	5	9	8	10	10	<b>5,26</b>	0	0	4	1	1	1	1	<b>5,35</b>	+0,09
	11	0	0	4	9	10	9	10	<b>5,29</b>	0	0	4	1	1	1	1	<b>5,35</b>	+0,06
<b>Average responsibility= +0,09</b>																		
SAFETY	12	0	0	9	5	8	13	7	<b>5,09</b>	0	0	7	8	1	1	1	<b>5,40</b>	+0,31
	13	0	0	1	4	6	12	1	<b>5,19</b>	0	0	7	9	1	1	1	<b>5,43</b>	+0,24
	14	2	2	4	8	12	6	8	<b>4,81</b>	0	0	7	1	1	1	1	<b>5,28</b>	+0,47
	15	0	0	9	7	8	8	1	<b>5,07</b>	0	0	7	1	1	1	1	<b>5,31</b>	+0,24
<b>Average safety=+ 0,32</b>																		



EMPATHY	16	0	0	5	10	10	9	8	<b>5,11</b>	0	0	11	8	1	1	1	<b>5,17</b>	+0,06
	17	3	0	11	9	9	6	4	<b>4,30</b>	0	0	12	10	1	8	1	<b>5,07</b>	+0,77
	18	0	0	9	10	9	8	6	<b>4,81</b>	0	0	10	9	1	1	1	<b>5,17</b>	+0,36
	19	0	0	6	9	10	7	10	<b>5,14</b>	0	0	7	1	1	1	1	<b>5,29</b>	+0,15
<b>Average empathy=+0,33</b>																		
<b>OVERALL AVERAGE= +0,18</b>																		

## ***DISCUSSION***

The results obtained are compared for each of the questions and for each of the five dimensions. Finally, we got the result which presented the difference of perception and expectations of students. A positive result obtained at the end shows that students got more than they expected.

Questions from 1 to 4 were related to the tangibility and the final average was -0.04. Questions 3 and 4 are questions where there is a positive difference between perceptions and expectations (referring to the appearance of the school staff and installation). Questions 1 and 2 were related to the physical installation and equipment. The results indicate that there is a need for investing in the improvement of the physical installation and equipment.

Questions from 5 to 7 were related to reliability. The final average is +0.17. The results show that the institution is reliable; it invests in staff training and takes care about the quality of its resources. This aspect is important because reliability is the most important dimension for services provided to consumers (Bateson and Hoffman, 2001, Lovelock, 2001).

Questions from 8 to 11 were related to the responsibility and had the average +0.09. The difference for all questions was positive, which shows that the services are at a good level and that the institution has invested in the education of its workers and their training.

Questions from 12 to 15 in the adapted SERVQUAL model were related to safety and had an overall average of +0.32. The difference in all questions is positive, which shows that the school takes care about the safety of students and the quality of communication between the different departments of school and between the school and the students.

Questions from 16 to 19 were related to empathy, and the obtained average is +0.33. Positive results indicate that attention is paid to understanding of their needs. The highest average was in the question no. 17 (+0.77) which referred to the interest of employees and directing their attention to students. The overall average for all five dimensions is +0.18.

**Table 6:** The difference between expected and perceived service quality (SERVQUAL gap)

Quality determinants	Perception (P)	Rank	Expectation (E)	Rank	SERVQUAL gap = P-E
Tangibility	4,74	5	4,78	5	-0,04
Reliability	5,21	3	5,04	3	+0,17
Responsibility	5,43	1	5,34	1	+0,09
Safety	5,36	2	5,04	2	+0,32
Empathy	5,17	4	4,84	4	+0,33
Overall SERVQUAL gap	5,18		5,00		+0,18

In table 6, we can see the difference between the expected and perceived service quality. The highest negative gap is in the determinants of tangibility (-0.04). Overall average for all determinants is +0, 18. The determinants that are above this average are safety and empathy.

## **CONCLUSION**

In order to achieve a competitive advantage in higher education, services that are provided must be of high quality. The concepts of expected value, students' satisfaction and perceived value should play a significant role in the decisions made by the management of higher education institutions. Evaluating students' expectations and calculating SERVQUAL gap is the best method for determining the lack of quality. The main goal of the SERVQUAL model among the students of the Faculty of Business Economics and Entrepreneurship was to identify the differences between expected and experienced quality and to establish quality determinants which are most important for students.

The results obtained through the survey analysis show that the Faculty of Business Economics and Entrepreneurship has offered more to its students than they expected.

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## ***THE SPECIFIC QUALITIES OF MARKETING IN INSTITUTIONS OF HIGHER EDUCATION***

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### ***Abstract***

*Colleges are serviceable organizations which provide the users with the educational services. Many factors affect the user of the educational service, but in the majority of them the dominant one is the role of man –the one who provides a service. Satisfied and motivated employees transmit the amenity to the users of the educational services, and they on the other hand transmit it to the potential users. The relations in colleges manifest through the interaction or communication between the employees and the users which contribute to the succesful values exchange. Colleges have the unique opportunity to enlarge the number of future users by making good relationships with the current users. That kind of approach has many advangates: the satisfaction of the present users is brought to a higher level and with the relatively small costs the college is publicized by the most trusted sources of information.*

***Key words:*** *Marketing, internal marketing, marketing of relations, college, user*

## ***INTRODUCTION***

In the service sector, so as in the educational, it is impossible to detach the process of serving from marketing like it could be done in the production of material goods. Because of the simultaneous occurring of the service processes (with the variety of accompanying problems), the behavior of the college employees has a great impact on the quality of service. Every service industry, depending on what kind of service it provides or its features and the intensity of giving and using, has its own specific quality.

The main part in giving the educational services has the man, or in other words the college employees.

They will provide a great service as long as they are qualified, motivated and rewarded for what they do. On the other hand, the users of the services (students above all) will form their opinion of the service according to its quality but also the behavior and the way the person is providing it. Creating the satisfied service providers, their training, motivating and rewarding is the matter the internal marketing is dealing with. Creating and maintaining the good relationships between the provider and the user of the service is the matter of the relationship marketing. Both of these types are very important for the business of any industry or branch, but in the service industry as well as in the education are crucial because they are directly engaged in the creating of the satisfied users. They can positively affect the attitude and behavior of the service users and even fix the mistakes made in the process of the exchange. Furthermore, they are important for differentiating the college and acquiring the competitive advantage. Their function should be to remove the conflicts between the parts of the organization of the college. The explanation of these two types of marketing and their importance for the college functioning will be given in the next chapter.

## ***COLLEGE EDUCATION AS A SERVICE INDUSTRY***

All the features of services and their differences concerning the product are the same for the educational services, except for the education that has its own specifics. Due to different characteristics of the services, colleges are confronted with different challenges. In order to beat it and become more market oriented these institutions need to be better informed about the surroundings and the market in which they function. The reduced state investments (in the public sector) to the education or self-financing (in the private sector) emphasize the necessity of using the marketing, choosing the right marketing philosophy and systematic approach to the problem solving. From the view of the marketing, the most important task for the college is to become market oriented. That includes a higher level of cooperation between the internal organizational parts of the institution, tracking

and analysing the potential target groups and knowing the legislation (*Gwin*, 1990, p. 45). Being that colleges have many target groups, they have to determine how and when to approach the students, their parents, economic organizations and government organizations, if they, of course, want to be effective in the market. This report is partly aimed at finding the solution for colleges in order to get acquainted to their market better, but also to distribute their marketing activities more effectively.

The special qualities of the education as a service are partly the result of the way of it being financed. Public educational institutions are usually financed from the government budget. In this case, there is a lack of direct connection between the user and the provider of the service in the area of costs. Moreover, the education is the activity of the general public interest so it is susceptible to the public judgement. The aims of the process such as the education are multiple and creating and forming the strategy which would satisfy all the needs is rather difficult. The process of the interchange between the provider and the user of the educational services, especially in the public institutions is usually not determined by the financial indicators. In their name the decisions are made at the other levels of deciding. What leads to the exchange between the colleges, as the service providers and their users is the marketing communication. Often, the change is made without knowing the function the marketing has in transaction. Educational services are, as any other, intouchable. "That is why students and their parents often decide about the quality of the institution or the teaching process according to the physical evidence: tidiness of the place, furnishing of the institution and the premises, the library, workshops etc. Service providers have a task to give the physical evidence next to their 'abstract offer', to make an action out of them and to turn the intouchable to touchable" (*Lovelock*, 1996, p. 43). The service cannot be stashed away. Lectures, drills, library, students administration are not the things one could stash away for the future and as needed take and use. The service cannot be anybody's property. As the result of concernment of the human factor, the services are capable of heterogeneity. Namely, the lecture and its quality depend on the teacher who deliver it, the intensity of the interaction with students and other human factors in the current environment. Because of that, the same teacher can hardly deliver two identical lectures. Considering all the challenges the colleges encounter, it is clear that they will have to become more market oriented. According to *Rindfleisch* (*Rindfleisch*, 2003, p. 147), movements in the market will be enforcing colleges to use more and more marketing techniques which are otherwise typical of profit organizations. According to *Paulsen* (*Paulsen*, 1990, p. 55), colleges will, if they want to gain competitiveness, have to act within a framework of the marketing concept which would consist of: (1) the establishment of the market position, (2) the identification of the competition, (3) exploration and introducing to different needs of the market segments and (4) developing of the marketing plan with the goal of marketing its educational services. One of the main preconditions for the development of the successful marketing strategy concerns the

defining of the factors which influence the student's decision to enroll in a particular institution.

Colleges do their social role not only by providing services to the users but also the education, presenting the new ideas, cultural enlightenment, socialization etc. This is what adds a new dimension to the services.

Many colleges provide their services to the several groups or audiences. Two frequent groups are (*Rindfleisch*, 2003, p. 148):

- Donors and financiers that can be individuals, companies or government organizations
- Students, employees and government officials

For the profit organizations, the success is measured only by the level of accomplished profit. Measuring the success of the government founded colleges is not that simple. The success of the government founded colleges is measured by the number of research papers and projects, the number of students, their success, the employee qualifications or the lecture quality. The combination of these factors makes the measuring difficult and can lead to conflicted situations. For example, many students demand greater commitment of the teachers which has a negative influence on the research work of the teacher and its results. About the teacher commitment, i.e. the work responsibilities of teachers in colleges will be said more in the next chapter – Internal Marketing.

## ***INTERNAL MARKETING IN THE INSTITUTIONS OF HIGHER EDUCATION***

Kotler and Fox are one of the first authors that started researching the possibilities of application of marketing in the higher education. These authors tried to, with certain adjustments referring mainly to the importance of the employees and internal marketing, apply the business (economic) marketing to the higher education. They were quite successful, however that gave rise to many comments and dilemmas. Frequent dilemma was about whether satisfying the needs, requests and wishes of the employees and therefore creating motivated and satisfied personnel is within the competence of the internal marketing or the human resource marketing. Elements from both of the scientific disciplines can be found here. Also, if we divide the question into two sub-questions, we get the next: (1) is satisfying the needs, requests and wishes of the employees within the competence of the internal marketing or the human resource marketing? (2) is the creating of satisfied and motivated personnel within the competence of the internal marketing or the human resource marketing? For the first question the answer is the internal marketing, while for the second one the answer is the human resource marketing. However, does the question really have to be divided? The purpose of the internal



marketing is to satisfy the needs, requests and wishes of the employees who will then be satisfied and motivated for working with the users, which is the right answer to the above integral question. Kotler's constatation confirms that the internal marketing has a task of successful employment of the working people, their skills updating and motivating the competent employees willing to serve the users properly. Actually, the internal marketing has to precede the external. There is no point in promising the excellent service level before the personnel is prepared to provide such (Kotler, 1997, p. 24)

From above, three main characteristics of the internal marketing are understood (Straughan, 2002, p. 253):

1. The goal target are the employees
2. The main task is to satisfy the needs and to motivate the employees
3. It is the most noticeable in the service organizations.

Within the context of this paper the target group are the college employees. In order to satisfy the needs and demands of the employees, the institution firstly has to explore what those needs are, demands or wishes but also what are the attitudes, perceptions concerning the institution and expectations awaited from the institution. Based on the results of the research of employees, a college has to develop a strategy of internal marketing that will define the way of satisfying the needs and the demands of the employees but at the same time the way of their recruiting, motivating, education and keeping their jobs (Kotler, 1997, p. 24). Satisfied personnel will show their gladness in working with the users, making the quality of the service better. The success of marketing with the users in the external market is determined by the quality and success of the internal market marketing. That is to say, there is a significant correlation between the levels of satisfaction of internal and external communities which can be seen at the picture 1.

If a college wants to create a greater individual importance for the user of the educational service from the one provided by the competition, beside the right strategy for the external market users, it has to have a successful strategy for the internal market.

The internal marketing comprises all the efforts the college makes for choosing, educating and motivating the employees for providing a good service, i.e.: the internal marketing is an instrument of applying the philosophy and the usage of marketing to the people serving the external users with the goals of (Palmer, Cole, 1995, p. 189):

- employing and keeping the best people and
- them working in the best possible way.

The goal market segment of the internal marketing is the employees and the colleges. A college ought to try, before selling the service to the users, to sell the service to its employees. (Homburg, Workman, Krohmer, 1999, pp. 1-17).

Internal marketing in a college includes the using of advertising criteria and knowledge about the management of the employees. The literature usually refers to marketing as a business philosophy, marketing technique and marketing approach (Straughan, Cooper, 2002, pp. 253-265). It is strongly correlated with the additional three instruments of service marketing – the personnel, the way of providing a service and the service environment. Due to a limited budget the colleges encounter today, it is becoming more important. As a business philosophy, the internal marketing is closely related to the organizational culture. Straughan and Cooper state that the bond between the internal marketing and marketing of services is extremely strong and goes beyond the traditional values and goals concerning the good serving of the users. The internal marketing of the higher education institution treats the employees as the users, while work in general or just one working task is seen as a service assigned for the personnel satisfying the needs and requests of the employees. From this point of view, the internal marketing is a business philosophy and is related to satisfying the employees as the users of the services. The essence of the internal marketing as a business philosophy includes the needs, interests, expectations and willingness of the employees in colleges and these have to match the interests of the institution, internal and external users.

Ballantyne (Ballantyne, 2003, pp. 1242-1260) claims that if the management of the institution demands from its teachers to provide a quality service, then a quality service needs to be provided to those teachers too which will satisfy their needs in the best possible way.

Rafiq and Ahmed (Rafiq, Ahmed, 2000, pp. 449-462), mention the three phases in creating of the internal marketing: a) motivating and making the employees satisfied, b) orientating toward the user and c) changes in the management attitudes and effectuation of the internal marketing strategy.

The precondition for a successful internal marketing is the communication between the employees of the institution, communication between the management and the departments and between different departments and the communication between the employees and the departments. This kind of approach requires the usage of the vertical communication in the organizational wholes (management – departments) and horizontal communication between the organizational wholes (departments). From this it can be concluded that all the employees are included in the communication in the institution which has a function of effectuating the successful marketing strategy, i.e. creating the satisfied service users (students). Many colleges invest a lot of knowledge, energy, money and time in creating, carrying out and controlling the plans, programs and activities of the external marketing, but at the same time despite its growing importance a little attention is given to the internal marketing. The internal marketing has a task to make everybody from the institution accept the appropriate marketing principles and also to employ, instruct, motivate and keep the competent people who want to serve well the users and in a pleasant environment.

## ***RELATIONSHIP MARKETING IN COLLEGES***

Relationship marketing creates additional value in the value chain resulting in the exchange of goods or services. This additional value have buyers and users but also the organizations that produce the products and or provide services (*Palmer, 1996, pp. 18-25*).

American Marketing Association was forced in 2004 to change its definition of marketing: “Marketing is an organizational function and a series of creating processes, communicating and delivering of the value to the customers and controlling the relations with the customers, in a way which is useful to the organization (*Kotler, Keller, 2006, p. 6*). A college should apply the relationship marketing concept to all the target groups with which does or is planning to do certain exchanges of values.

Students are not the only segment that a college needs to build a good relationship and exchange values. The institution should apply the relationship marketing concept to all the target groups: students, economic organizations, state authorities, donors and personnel.

Gronroos (*Gronroos, 2004, pp. 99-113*) defines the relationship marketing as a process of controlling the relations between the organization and its customers/users, or more accurately as a process of identification, establishment, development and improvement of the organization’s relationship with the customers/users and in a way of satisfying the mutual goals and interests – the profit for the organization and satisfying of the needs for the customer/user. This author claims that the relationship marketing is chiefly a process that all the marketing activities of the organization have to adjust to. According to the definition, the process begins with the identification of the potential customer/user, making a contact with him or her, developing the relationship and ends with maintaining the relationship and all that with a communicational goal – the oral propaganda.

Gronroos considers the next elements of the marketing process to be the main ones: communication, interaction and value. If these elements exist, there are conditions for developing the relationship marketing.

Colleges have all these three elements. Communication is directed toward attracting the potential users (students), interaction is made by the encounters of the users with the personnel and the value is mutual – the college gets the profit and the student gets the knowledge. What is really important element of the relationship marketing in colleges is the value which is perpetual for the user. The main element of the marketing in colleges should be based on the relationship marketing which is characterized by the development and rapidity of the interaction between the employees and the users of the educational service. This kind of approach emphasizes the role of the user and focus on the quality of the

educational service. The relationship marketing cannot be carried out if the college institution is not marketing orientated (*Hemsley-Brown, Oplatka, 2010, pp. 204-220*).

Gronroos claims that the crucial element of the relationship marketing is the interaction between the organization and the customer/user. In service organizations such as colleges, the interaction is made between the personnel and the users. In order to make the interaction positive, it is required to develop and carry out the strategy of the internal marketing. In this case, the internal and relationship marketing are parts of holistic marketing. The other two parts are social marketing and integrated marketing. Social marketing is concerned with the social responsibility of the organization toward the society and integrated marketing is a result of the every department's familiarity with the needs and requests of the customers/users.

Traditional or transactional marketing is orientated toward attracting the potential customers/users, while the goal of the relationship marketing is to attract the potential users and to keep the present ones (*Kotler, 1997, pp. 23*).

According to Ballantyne, for the relationship marketing to be successfully carried out in some organization, the next preconditions must exist (*Ballantyne, 2006, pp. 73*):

- strategic orientation
- internal marketing
- mutual trust between the provider and the receiver of the service.

Zeithaml and Bitner identified five main advantages of using the relationship marketing: bigger supplies, lower costs, free verbal advertising (word of mouth), retaining the employees, permanent value for the customer (*Ivankovic, 2008, p. 526*).

Afore-mentioned advantages of using the internal marketing can be made also in colleges with certain adaptations. Considering that colleges are service organizations which provide their users with services for at least three years, than we can say that these are the advantages of using the relationship marketing:

- attracting the potential users (students),
- larger number of the enrolled,
- free oral advertising,
- retaining the students and the employees and
- permanent value for the graduate student.

Certain advantages are mutually connected and complementary, so is the attracting the potential users (students) directly connected to the oral advertising of the present students. That could lead to a larger number of enrolled students but also minimize the costs of paid advertising. Retaining the employees and especially the students is a big problem for Serbian colleges, which will be discussed more thoroughly in the next chapter.

Correlativity of the employees and the users of the educational services is the essence of the relationship marketing in the higher education. The complexity of the services is next to their characteristics defined by the relationship between the employees and the students, i.e. those providing and those using the service at the college institution. Therefore, the focus of the marketing strategy of the higher education institution should be, besides the service and the market, also in the relationship between the provider and the recipient of the educational service. These two groups could share myriads of relations. Specific relationships are not manifesting only through the knowledge offered to the students, but also through all the teaching and extracurricular activities which in a certain way comprise many elements of all the marketing instruments. Dealing with the establishing, developing and maintaining the good relationships, colleges are in a superior position comparing to the organizations of different professional activities. Namely, higher education is not a short-time activity where the customer can easily change the salesman by going to another one, but will typically stay at the institution he enrolled for at least three years (so far as college is concerned). The length of the student's stay in the institution must not be abused, but should be used in case the student is not satisfied, so they could have enough time to fix the misunderstandings and mistakes in the relationship and to make the unhappy student feel satisfied. Understanding the characteristics of every relationship between the employees and the users in a college is crucial for developing efficient marketing strategies. The relationships must not be observed as pure transactions where the usage of the service is a short-time job. Colleges need to be aware of their services being substitutes. The relationship marketing in colleges is the effort of creating, maintaining and advancing the relationship with the students but also with other segments of the public with the goal of making the positive business result.

This kind of marketing is oriented toward the partner relationships based on trust. The relationships with the users of the services are built by creating the value which would make the users satisfied. In that case, it is important to pay attention both to the quality of the service and the contact with the users who need the service. The relationship marketing is focused on creating the good relationship with the current users and less focused on the potential users. It has a goal to create, maintain or enlarge the level of satisfaction of the current users, and if that ends up successful the current users will by 'the word of mouth' spread their satisfaction and positive attitudes to the potential users. In that way a college can minimize the costs of advertising, which are majority of all costs.

## ***The importance of the relationship marketing in colleges***

In the competitive world of colleges, the relationship marketing is getting more and more important. No clearly defined attitude of its aspects is still defined, mostly of the practical results it could create. The level of the satisfaction of the educational services users affects the relationships with the institution. The strongest segments of the market are reflected in the relationship between the most satisfied and loyal users. The satisfaction has an objective and a subjective side. The objective elements are based on the concrete side of the offer (quality, above all). The subjective are connected to the identity of the institution, its image, human relations, etc. That is why the management of the institution has to be aware of the concrete and intangible side of the offer in order to manage the satisfaction of the users. Building a model to identify the critical areas for increasing the user satisfaction is a prerequisite for the efficient management of their loyalty and joy. Additional justification for the use of relationship marketing is that it can be much cheaper and more effective than the transactional marketing. It is based on the fact that it is easier to keep existing customers than to attract new in competitive markets. This does not mean that the transactional marketing should be rejected. Without the good market segmentation, selection of targets, proper positioning and efficient management of the marketing mix instruments, it would be hard for the higher education institutions to achieve success. The system model of the relationship marketing in colleges must be based on the transformation of the customers to users, construction and management of the 'employees-users' relations, creating and maintaining customer loyalty and the development of human potential and adapting of the higher education institution to the customer's requirements.

## ***Giving up the studies and keeping the students***

It can be said that giving up the studies reduces the income and increases the costs of higher education institutions. The basic question for the reason of giving up is "why?". The answer to this question the higher education institutions seek in the employee relationships with the students, the quality and the structure of the study program, teaching material and the ways of financing the students (*Thomas, Adams, Birchenough, 1996, pp. 207-221*). Tinto (*Tinto, 2011, pp. 89-125*) has created a model of dropping out based on the multi-level research. The model shows that if students are more integrated into the academic and social life of the higher education institution, they drop out less frequently. Rickinson and Rutheford (*Rickinson, Rutheford, 2011, pp. 213-225*) explored the factors that influence the dropping out and methods of retaining the existing students. According to these authors, the most important factors are related to the student's preparedness in

academic and emotional aspects. The academic aspect was mainly concerned with the problem of acceptance of the program of study, while the emotional aspect is related to the separation from home.

Yorke (*Yorke, 1997*) also explored the reasons of giving up and as the most common he noted these six:

- the student's lack of interest for the study program and the disagreement with the management's decisions;
- negative attitude of the employees toward the students;
- insufficient preparation (little previous knowledge) for studying;
- lack of confidence in the program or the institution;
- financial difficulties of the students, and
- low academic improvement.

Also, the same author identified the specific groups where these reasons have a different meaning and intensity. Identifying the significance of the reasons for giving up is very important for the higher education institutions, because with the understanding of the reasons they can prevent or eliminate the cause of giving up and thus increase the rate of retention, i.e. the keeping of the students. This research shows that the students who drop out do it temporarily, with the intention that one day when the situation is appropriate, continue with studying. The motivation for obtaining the higher education diploma is really great, even for the individuals who currently canceled the studies. The marketing of the higher education institutions should deal with these issues. Relationship marketing refers to a more holistic approach with the intention of developing and implementation of the relationship strategies concerning the students. These strategies focus on the interconnectivity of the employees and the students in the higher education institutions and their main aim is to create loyal customers and build the student's trust in the institution.

## ***Relationships and loyalty***

Student loyalty to one institution of higher education could be defined as the voluntary participation in the relation regardless of the changes, impacts and the always present option of going to another college. Loyal students can play an important role in encouraging those students who wish give up the studies. Therefore, strategies aimed at building good relationships with students, must include all students.

Henry warns that while creating the loyalty, two types of loyalty to colleges should be distinguished: sincere and false loyalty. Sincere loyalty is the honest relationship between the institution and the student, while the false loyalty is, in

fact, another word for the student dissatisfaction despite which they still remain in the higher education institution. The reasons for the dissatisfied students staying, i.e. continuing the studies could be:

- lack of the good alternative;
- no significant differences with the others;
- increased risk of transition;
- high costs of transition.

There are deeply rooted opinions that the quality of educational services and the student satisfaction contribute to the increase of the loyalty. In the literature concerning the field of marketing one can often come across the question of whether loyalty implies satisfaction and vice versa. The increased satisfaction does not necessarily contribute to the increase of the loyalty of all service users. Even the satisfied customers can decide to change the product or organization. Concerning this, Neuhaus and Strauss (*Strauss, Neuhaus, 1997, pp. 345-351*) find that satisfaction is only one of the elements of loyalty. Gronroos (Gronroos, 1994, p. 21-38) distinguishes between the satisfaction related to only one service (episodic satisfaction) and the overall satisfaction, which includes long-term relationships (loyalty).

## **CONCLUSION**

Internal and external markets are different. Thus, the internal and external users are different, and for the successful implementation of the marketing in the internal market, it is necessary to adopt specific qualities and develop an appropriate approach. The internal market is closed and the relationships between the supply and demand are relatively fixed. Also, the influence of the external environment factors on the internal market stakeholders has been reduced dramatically. Therefore, the ratio of the internal market participants and the exchange of values between them are of critical importance. That is, the psychological aspects and the quality of the relationship among the participants in the internal market are crucial for achieving results that are measured by the intensity of motivation, satisfaction, doing a job professionally, and so on.

As already mentioned, the primary goal of the internal marketing in higher education institutions is to create the satisfied personnel. To achieve this, the employees need training and rewards, i.e. to be properly evaluated for their contribution in carrying out their duties. The employees should be presented the benefits that would be gained through the education and the implementation of the new ways of working. Also, it is necessary to carry out the research of the employees in order to determine their attitudes and perceptions about the institution and the expectations of the institution in which they work. They have to feel like an important part of the institution whose opinions are respected and not just as



individuals carrying out their duties. The interdependence of the employees and the users of the educational services and the complexity of the services are the essence of the relationship marketing in the institutions of higher education. Although the students are not the only users of the educational services and are not the only segment of the public, for the academic institution they are still the primary target group that acts the most intensely in the basic activity of the institution, and that is the education. Between the higher education institution and its students there is a series of relationships that manifest themselves through all curricular and extracurricular activities. In other words, there are many elements that affect relationships between the institution of higher education and its students. These are not only the relationships between the employees and the students, but also the quality of study programs, tuition fees, then, the working hours of the student services, library equipment and teaching facilities, the appearance of the building, teaching rooms and other rooms, the existence of the student club, the organization of students events, etc.. Students can be satisfied with the relationship between the employees and themselves, but that satisfaction can be disrupted if any of these elements does not meet the student expectations. Well-trained and motivated staff, with a good approach and attitude toward students, may influence the reduction of dissatisfaction among some students and therefore great attention should be paid to the development of good relations between the employees and students, i.e. the users of the educational services. From the above, it can be concluded that the internal marketing and the relationship marketing in higher education are, although different from each other and aimed at different audiences, closely related. The institutions should develop and apply them in parallel because only in that way, knowing and meeting the needs and demands of the of employees and the users of the educational services, they can achieve success in the internal market (in the institution) which is a prerequisite for the success in the external market in respect to combating competition, attracting new students, retention of existing students and more effective communication with potential students.

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# **IMPLEMENTATION OF MARKETING PRINCIPLES IN EDUCATIONAL NON-PROFIT INSTITUTIONS' DOMAIN**

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## **Abstract**

*In the era of global competition, when service users are characterized by specific behaviour that is reflected in highly expressed preferences, when the differences between brands are evident, educational institutions are simply forced to act in market conditions, viewing from the marketing aspect. In such circumstances, it is necessary to carefully create a competitive product or a service, define an optimal way to distribute it (i.e. the location), and of course, promote it to a target group in educational market. This paper deals with modern surrounding of non-profit higher education institutions and modalities of responses to challenges that stem from external environment.*

**Key words** *Non-profit sector, educational institutions, external environment, higher education, marketing mix.*

## INTRODUCTION

*Non-government non-profit organisations* are independent organisations that are founded by group of citizens with different motives, goals and interests. Keep in mind that the government also has organisations that deal with similar issues, but with the help of government apparatus, they also involve the financing. Non-government non-profit organisations can be divided on (Vasilevska et al., 1999, pg. 5): *organisations that serve all members of society*, or public service organisations, encompass different humanitarian and charity organisations, social services organisations, foundations, consulting organisations, etc; and, *organisations that serve only to members of different social groups* – different professional and specialised associations, interest groups and alliances.

Coordinated and networked activities of non-government non-profit organisations, institutions and agencies in a society are performed by non-profit sector (Mitic, 2012, pp. 50-53). Non-profit organisations are not in business of enlarging the capital, even when they are making profit (profit is put in charity). *Non-profit organizations* can be founded by citizens and the government, so we distinguish *government and non-government* non-profit organisations. The core of non-government organisations' business is linking individuals without mediation and government control, with a common goal in mind. They are made as an alternative in dealing with problems in various aspects of life, which the government institutions do not solve in acceptable ways.

The first part of this paper deals with basic organizational characteristics of non-profit sector, considering the numerous specific characteristics in relation to other organisations that, as a consequence, impact the relationship of competitors in education and the formation of specific marketing mix.

Later, the controversies with defining mission and vision for non-profit educational institutions are examined. The continuation is a detailed analysis of basic marketing principles implementation higher education with special emphasis on specific segments of educational institutions marketing strategy, having in mind that non-profit organisations often do not have respectable budgets for marketing activities, and are compelled to use specific elements of marketing mix allowing for bigger presence in media and recognisability to a broader audience.

## ***NON-PROFIT ORGANISATIONS – BASIC COMMENTS***

Intense development of communications has significantly affected the strengthening of private initiatives and contributed the growth in globalisation of non-profit sector. Medium, urban class is an important promoter of initiatives in this sector, thanks to relatively big informal importance in society that gives them great significance.

All organisations that function in one society can be broken down to state organizations (public sector) and non-governmental organisations (private sector).

Non-governmental organisations that originate from citizens on their own private initiative are organisations of civil society. Non-governmental organisations imply (Paunovic, 2002, pp. 19):

- *Profit (commercial)* – those are organisations whose goals are profit-making and enlarging the existing capital (i.e. companies in private ownership) and
- *Non-profit* – those are organisations that do not make profit, or if they are making profit, they do not invest it in enlarging the capital again, rather they give it to different charitable and humane causes (i.e. humanitarian and charitable activities)

Nowadays, non-profit organisations have big significance in the social politics of developed countries. A modern country with big administration is no table to fulfil all the needs of its citizens, upon which many of its functions and programmes are shifted to non-profit sector where they are more efficiently achieved. Besides that, the significance of these citizen groups around fixing different private and social problems is building the relationship network that is independent of the state and makes civil society.

Organisations of this type increase citizen participation and their responsibility for themselves and the society they live in. In that way, Non-profit, non-government sector becomes an alternative to the government sector. To consider organisations as non-profit, they must fulfil the conditions (Parun-Kolin, 2008, pp. 27):

- They must be institutionally separated from the state, meaning they cannot be a part of the state apparatus but they can receive help from the state;
- They must accomplish non-profit distribution of resources; the main function is not making profit, rather, if they accumulate profit, it is redistributed back to the main mission of the organisation;
- They must be autonomous in their interior structure (management and – control);

- They must have formal structure: informal and occasionally formed groups are not a part of non-profit sector, because the concept of non-profit sector would be too amorphous;
- They imply voluntary citizen participation and the presence of voluntary investments, which does not mean that everybody is volunteering in a organisation, nor all income comes from voluntary income;
- Cannot be engaged primarily in politics, meaning their function is not to promote political parties and candidates, even though they can be engaged in political activities.

Non-profit sector encompasses wide array of organisations, with different goals (table in appendix 1.)

*Table 1: Appendix 1.: NVO classification (John Hopkins model)*

TYPE OF ORGANISATION	EXAMPLE
Alternative cultural organisations	EXIT
Educational and research organisations	Centre for researching alternatives
Eco-organisations, societies and movements	Scout union
Humanitarian organisations	Group 484
Socio-humanitarian organisations	Red Cross, Centre for child rights
Youth and student organisations	JAZAS
Local community development organisations	The biggest number of local organisations
Professional and specialised organisations	NUNS
Organisations for human rights	Humanitarian law fund
Think thanks	City initiatives, CESID
Peace organisations and groups	Women in Black
Female organisations and groups	LABRIS
Refugee organisations	Refugee association from KiM
International organisations	IRD, CHF
Other non-classified organisations	Hedonist association

*Source: NGO Policy Group: Treci sektor u Srbiji - stanje i perspektive, Centar za razvoj neprofitnog sektora, Beograd, 2001., page 19.*

Non-profit organisations are: science institutions, museums, hospitals, amateur sport associations, state schools, different humanitarian organisations, labour unions, government administration, Red cross, charity, non-profit non-government



organisations, citizen associations, etc. Some of the non-profit organizations that were mentioned as examples are from Serbia, but most is present in different countries in the world, only with different prefixes/suffixes or modifications in name while the domain of activities is the same (i.e. Red cross).

Classifying non-government organisations, as main representatives of civil sector, is done by the Centre for developing non-profit sector systemisation from Belgrade, which is really a modified classification of Centre for civil society research of John Hopkins University in USA.

In order for non-profit organisations to help those who they exist for, or to better connect with similar non-profit organisations, to attract volunteers, and to secure funds for their activities, it is necessary to apply similar *marketing* activities as profit organisations.

It implies well-developed and nicely designed public relations, internet marketing, lobbying, researching user needs, organising different manifestations to collect funds, etc. The main goal of marketing activities in a non-profit organisation is to familiarize the public with its work, to ensure sympathy and support of greater social community for its activities, to develop a recognizable image of socially responsible organisation, and ultimately, create conditions for sponsorship contracts, donations and other types of help. Web marketing is an important tool when it comes to the realisation of marketing mix, considering such organisations have small marketing budgets.

Lots of non-profit organisations do not have permanently employed workers in charge especially for marketing. One of the options is to hire an agency that specialises in this type of marketing, which can help non-for-profits to effectively communicate with their target market and present their activities.

## ***CONTROVERSIES WITH DEFINING MISSION AND VISION OF NON-PROFIT EDUCATIONAL INSTITUTIONS***

In modern world, knowledge is definitely the most important resource; in that sense, development of intellectual capital of a nation represents a guarantee of its success, an investment for the future. Japanese saying says: „Nobody in the world is more powerful than a man who knows“. Education, in its nature, is a serious investment. Therefore, carefully choosing what type of education to pursue is of utmost importance. Besides that, education represents a continual process whose goal is to transfer knowledge and skills, to develop abilities necessary to adequately function within a community. Knowledge and skills imply a set of information, procedures and rules grouped „in specific, steady pattern that represent a product with complex and long-term processes: observation, thinking and reasoning.“ (Risantijevic, 2007.) Of course, to different types of skills and knowledge we give different meaning on specific stages of development in

human society. However, there is no doubt that those who disposed with favourable knowledge and skills were those who attained privileged position in the social hierarchy. Looking through the history, there has always been a tendency to upgrade knowledge, oppose it and create new, with that in mind, 20th century represents a turning point, in a sense that knowledge ages more quickly.

It used to be that knowledge would be declared obsolete after decades, sometimes even centuries, while today we are witness of a drastic change.

In modern living conditions, knowledge and education significantly increase life quality, better living standard. Moreover, knowledge and education are nowadays everywhere and can be gained through different media, individually or in a group. The concept of permanent education in modern world does not represent a matter of will or choice, but a responsibility and necessity.

The general consensus about mission and vision of an institution is important in the work of a modern school, college and university. In fact, every expert on a different position in a educational process (assistants, professors, accountants, PR experts, scientists, even class material designers) that works in an educational institution adjusts his/her work and relevant decisions with some mission and vision of an educational institution. In practice, it means that there will be as many opinions as there are workers, when it comes to what a specific institution is and what it should be in three to ten years. Having in mind that mission and vision determine the function of a institution in a society, they should not be private; they must be publicly presented and accepted documents that enable unity and sublimation effort of the whole educational institution (all of its members), beginning from the governing administration, educational staff, all the way to students. Mission relates to the current function of an educational institution, and vision describes the desired function and results in nearby future, in a period from three to ten years. Problems that are most common in practice, from an aspect of defining mission and vision of educational institutions, are:

- Educational institutions that are in state care belong to a group of non-profit organisations, meaning the state does not expect any financial gain from them. It is often thought there is no reason to define mission and vision if there is no financial gain, which is not correct. Non-profit implies no financial gain, but the sole existence of an institution and people employed in it must have the reason to exist, that is, a mission that the society recognizes and respects. In that sense, it can be said that every institution functions to fulfil its mission, and profit represents one of the factors to realize the mission in the best possible manner;
- Many educational institutions, especially in transitioning countries, do not have publically published mission and vision. For many of them, defining mission and vision presents totally new categories. Besides that, these terms often get mixed up in practice, sometimes even happens that they unite in one term because there is no awareness of clear distinction between them;

- Certain mission elements, such as the purpose of educational institutions' existence, are in many countries defined by legal acts that regulate the functioning of an educational system. The problem is that those are just mission elements, because they are completely unadapted to specific educational institutions. In the end, missions defined like that (partial segments) are not publically published and accepted. Relevant legal acts are not enough, but are sometimes useful as a start point when defining a mission of a educational institution;
- It is rare to find a wrong stance that the mission is already known, in practice. It is usually the case when certain individuals have a clear notion of a mission and vision of their educational institution. Usually, looking from the aspect of the whole institution, it does not have much significance because it is their private understanding, not in line with the majority of employees in an institution;
- Mission and vision do not have practical significance when they are not adopted and carried out, even when they are ideally defined;
- Wrong interpretation of educational institution's independence and academic freedoms can also be identified in the educational organization's sphere. By that, of course, the independence of educational institutions from politics is implied. However, we must emphasize that academic freedom and independence of educational institutions are not absolute and understood categories, but they significantly depend on educational faculty and the institution in its entirety are carrying out the mission which is legally defined and funded by the society. Quality appointed mission of an educational institution is essential. All employees must know it. Educational institutions and faculty are independent only in realisation of their own mission.
- It is often wrong to think that an institution first needs to analyze what customers, in this case pupils and students including employers, want to buy, and according to their needs make educational products modified to their needs, and in accordance with that define the mission of an educational institution instead of making the educational product first, and then figure out the modalities how to place it. Therefore, mission of an educational institution should be according to the needs of a society, instead of according to our wishes.
- The idea that an educational institution does not need mission and vision to function properly is absolutely displaced in a situation when the competition is getting fierce and the quality of education especially in higher education institutions in the region becomes highly disputable;

- Missions and visions are usually not aligned with missions and visions of other institutions. In practice, when jurisdiction is not clearly defined, and the mission of one institution matches with the mission of the other institution in immediate proximity; numerous functions are then postponed because it is unknown what needs to be done. If it is a matter of an institution with different owners, the results in a competition that is always welcome. If the institutions have the same owner, then having the same mission has negative effects
- Educational institutions have many groups of customers, but rarely can one find the mission of an educational institution that describes more than one type of a buyer. Direct buyers of educational products are pupils and students, but what is usually missing when defining mission are indirect buyers of services. Those are future employers, but also family as well as the society in whole looking from a point of benefits that they have from educational programs, that is, through the knowledge pupils and students acquired.

## ***MARKETING IN THE DOMAIN OF EDUCATIONAL INSTITUTIONS***

In the midst of globalisation, technological advances and increasing competition on the market, the educational institutions that have not traditionally used marketing conception in the modern conditions are forced to change their approach, putting students in focus of their business. So far, the educational system was characterised by quantity, not quality. In that sense, professor Muller believes that the priority should not be adopting large quantities of educational materials, but developing creative ability of an individual, logics, and the ability to initiate innovations and adopt specific educational materials necessary for direct entrance in the work process. In accordance with modern means of functioning in educational institutions, logical reasons for using marketing orientation in the sector of education are (Cavic et al., 2011):

- External conditions are becoming heavier, market conditions piercing and changes on macro level more and more intensive;
- The needs of educational services' users are growing and expanding due to technological changes; services that are qualified as solid are aging very quick;
- The users of services have significantly more sophisticated preferences in these modern times;
- The complexity of conditions to secure safe financing is rising, as well as the responsibility for their use;

- The competition pressures educational institutions to build image and implement marketing;
- The success in satisfying the needs and fulfilling the demands from users of educational services results in good reputation which increases chances to increase funds.

Marketing in education is evident in recent time, when educational institutions figured out the significance of two-way communication with users, and started adjusting the concept of education and specific educational programmes to their needs. „Marketing in educational institutions relates to business processes of researching the needs and demands of users, information analysis from users, as well as the development of new services. “ (Jovanovic and Veljovic, 2011; Jovanovic, 2011, pg. 27).

Certain marketing activities can be specified in accordance with the ditto formulation:

- Analysis of needs and user demands, which implies planning and market research, research results' analysis and defining the development of services;
- Collecting user feedback, processing and detailed analysis;
- PR activities around defining the image, making media plan, preparing and organising press conference, text preparation for media, internal communication;
- Promotion of educational institution: making brochures and catalogues, analysis of effects from marketing activities;
- Developing new services.

## ***THE APPLICATION OF BASIC PRINCIPLES OF MARKETING IN HIGER EDUCATION***

Institutions of higher education are fulfilling a social responsibility by educating and qualifying people in accordance with the needs of a society, and by that they accomplish their key mission. Students, as direct users of higher education institutions' services act like customers; it means the process of their decision making when choosing college is a lot like buying a product. Students carefully estimate the institutions of higher education looking for a better service, higher quality, functional programmes, and with that they want to get certain value for their money, analogue to any other purchase (Maringe, 2009, pg. 44). Therefore, the primary goal of every institution of higher education is to fulfil the wishes and needs of students.

The key assumptions when implementing marketing conceptions in higher education institutions as subjects of social occupations according to Meler (Meler, 2003, pg. 122) are: that the economical problems of the economy are solved and that the experiences are significant in the implementation of conventional marketing; the key factor is actually quality, so it is necessary to allow special criterion of educational service that a college offers, as well as mechanisms for its monitoring and corrections, in continuity.

The choice which marketing strategy an educational institution should choose implies defining optimal ways of realizing set goals, taking into consideration that the goal of marketing, as a business function, is to help growth and development of educational institutions by adjusting educational programmes with needs and desires of its target groups. It is therefore necessary to define the needs of certain market segments, the choice of target market segments and ultimately forming specific marketing mix for every market segment individually (Milisavljevic and Todorovic, 2001, pg. 70).

When developing marketing strategies, colleges are forced to offer unique supply on the market and to minimize operational costs, while having in mind the heterogeneity of the market, the expenses rise due to different segment needs and diversity of supply on the market. All of the above implies the choice of marketing strategy that acknowledges the balance between efficient business and satisfying the needs of higher education institutions' users.

Formulating the strategy of higher education institutions implies the analysis of competition and positioning towards it, as well as examining the existing and new possibilities: strategic marketing planning highly valorises research on users' needs and wants. Also, besides the competition, educational institutions are also interested in changes in demography, economy, and other areas.

Therefore, identifying the needs of target groups is important. Based on it, proper services, programmes and procedures need to be created. By developing new services, new programmes, recognizable image and participation in domestic and international projects, the weaknesses in functioning of higher education institution and possible threats for external environment should be transformed into a potential for further growth. The organizational structure should be formed in a way that allows for prompt market signal reactions aiming for timely and quality fulfilment of user needs; in that sense, organizational structure needs to allow the flow of information and new ideas in an optimal way. Having all that in mind, it is clear that marketing cannot be separated into a special business function since it is widespread in the organisation, while marketing approach and the importance of its implementation on all levels should be clear to all employees (Papic *et al.*, 2011, str. 482-485). In accordance with the intention of strengthening the marketing, it is inevitable to build a structure for development and coordination in higher education institutions.

Higher education system is heterogeneous on the supply and demand side, which is significantly similar and different in needs and attitudes of educational services users. Therefore the concept of market appearance of higher education institutions comes down

to an optimal combination of market segmentation strategy and services differentiation; the system of higher education has the following reasons for market segmentation:

- Marketing mix has to be developed for every target group separately; having in mind the specific demand for higher education institutions where the needs of adult mature students (the need to advance in business environment) are significantly different than the needs of students that just came out of high schools;
- Market entry and acquiring the dominant position is not a real option, since there are brands that exist for many years and have built images. Therefore, new competitors need to strive to be in a dominant position in some special market segment;
- Market segmentation of a higher education institution helps to identify media that reach certain target group. Educational institutions therefore need to use proper communication channels for the message to reach users, since not all have an access to communication channels, not do they have the same preferences. Targeting, in this sense, refers to differentiation towards different indicators, for example, gender (male use internet more frequently), media types (magazine sale more popular in Spain than in Italy), etc.;
- The key issue in segmentation is actually identifying the needs of consumers in continuity, from pre-school level till the end of life, making the concept of lifetime learning;

Institution of higher education has three strategies at disposal, from the aspect of adjusting its own potentials with the market potential:

- First of the three mentioned, the strategy of multiple market segmentation, implies the activities in two or more market segments, each having a special marketing mix. In essence, it is a strategy that allows the users of educational services what they want (Zivkovic, 2009, pg. 17-19). Implementation of this strategy implies that the higher education institution puts an effort to make as much market share as possible, while using the existing differences between market segments. The benefits of multiple market segmentation must be viewed in relation to costs that it requires and which grow when creating and managing a service, marketing research, and promotion. Differentiated marketing groups users based on their demands into homogenous segments and then apply the strategy. *Specialised service* means creating services that are distributed in many market segments, making the reputation of higher education institution build in a specific service domain. In case of *market specialization*, the focus is on satisfying the different needs of a specific group of users, which helps the reputation of an educational institution. When using selective specialization, a number of attractive market segments is chosen, having in mind the available funds and goals of higher education institution; that, of course, diversifies the risk of the institution;

- In homogenous market conditions, the mass market strategy is used and implies an effort to meet the needs of different groups of users with one, broad marketing program; it means a limited number of services is used and created for many user groups. Mass marketing treats the whole market as users with similar needs; characterized by mass production, while mass communication is used only for informing, that is, giving relevant information. The first type is product differentiation whereat the demand; it is important to emphasize that this strategy implies unreal diversity and promotes superficial benefits instead of using realistic methods based on the needs of different market segments. With *undifferentiated* marketing, one unique offer is formed for the whole market, while the market differences are ignored; congruently, university programmes are initiated with a goal in mind, to serve any student in the mass market.
- In cases where evidently a well defined segment, concentration strategy for one market segment is used, in that case, what is created is a specialised marketing mix for one group of users. And a danger from emerging competition in the same segment, concentrated marketing uses greater level of risk of losing educational institution services users under new conditions. The concentration strategy is one market segment that is present in two forms, as an *exclusive* concentrated marketing when the focus is on one segment of educational market with clear aspirations for dominating it, and integrative concentrated marketing that represents an extension of exclusive strategy, in a sense of spreading one market segment to involve other similar segments; having in mind that the exclusive market segment is used as a starting point for expansion on other segments of educational market.

### ***SPECIFIC MARKETING MIX***

It is considered that the classical marketing mix model und form of 4P does not satisfy the domain of services; consequently, often two more instruments are found (Cowell, 1982, pp. 78-89; Nicholls et al, 1995, pp. 31-38): people, having the importance of contacts in mind when realising educational programmes, and process that has limited influence in higher education.

The implementation of marketing knowledge can significantly alleviate the creation of higher education institution's competitive position on educational market; therefore, it is possible to define a specific marketing mix which would imply four basic factors, for services in higher education (Leko Simic, 2007):

- Educational institutions have resources and technologies at their disposal; they use them to create a specific product that can be called an *educational service*, which is defined in various domains that are mutually connected. Every domain must satisfy the basic quality criteria. The following usually belong in the before mentioned domains: direct benefits from the users of services, general usefulness of educational programmes for the whole society, the development of human resources, participation of educational users in the activities of the



- institution as well as interaction with other users; relevant areas are also the impact on local community development and functioning of the whole society based on the increase in education.
- Services in higher education do not differ in relation to other products and services, when we view them from the point of economical *expenses*. They can basically be explicit and implicit; the first refer to the costs of labour and capital of higher education institutions and their calculation does not represent too much of a problem. Although, except from tuition that is in limited cases in non-profit institutions (for example, in the form of self-financed students vs. Budget financed students), looking from the aspect of a educational institution's user, there is evident existence of many implicit (added costs) costs that are commonly on a bigger level than explicit costs (especially with budget students) which students highly value when grading the competitiveness of a higher education institution. Explicit costs include: the costs of buying books, accommodation costs, food costs, travel costs, etc.
  - For the services provided by higher education institutions, characteristic are expressed differences in the perception of quality of certain institutions from the same domain of higher education, as well as high prices- especially for students that pay their tuition, but also for those that do not pay financially, but need high GPA. The attitude of potential students depends on the level of involvement in the process of choosing a higher education institution. It is evident when defining the area of education (economic conditions in the country have a special effect here, then information from labour market on the actual situation from the aspect of demand for specific educational profiles, as well as advices and experiences of parents and friends), and also when we observe competitive institutions in the same educational segment (where *promotion* of higher education institutions is of utmost importance). Personal sources have great significance when trying to inform about higher education institutions. According to the relevant research (Božanic, 2006, pg. 46-47; Nicholls, 1988), most of the students inform themselves through personal contacts. Also, most students are not satisfied with available information on employment opportunities. The following data quoted by Leko Simic and Carapic is indicative: "Research in Great Britain (Nicholls and Wong, 1988) indicated that over 50% of graduate students say personal contacts were the key source of information that influenced their choice of higher education institution. At the same time, many students in the same research showed discontent by the information they obtained from the institution for whose programmes they were interested in, and some even say information received were deceitful". Research in Croatia (Božanic, 2006) showed that even 52,6% students, which is alarming, is not satisfied with the information regarding employment offered by the universities. Only 3.7% of the students are completely satisfied with offered information.

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## **CONCLUSION**

Generally speaking, the goal of every serious subject is to satisfy, and if there is a possibility even to surpass the quality of service that users expect.

The implementation of marketing philosophy in higher education institutions alludes that the whole educational institution moves and thinks within a framework of marketing conception, meaning it takes into account the needs of users, market segmentation, competition performance, and the development of new services in line with modern market trends.

It can be concluded that the key factor is quality, and according to that specific criteria of quality need to be set for educational services, and of course, mechanisms for continual monitoring of set criteria. Educational institutions must continually upgrade the quality of services being offered, since it significantly affects the image and rating of the educational institution. The key elements of access to full quality educational institutions are: communication, culture and devotion.

Marketing activities in higher education institutions should surely be the results of team work, but also from the exchange of ideas with similar institutions from the surrounding.

Viewing from the aspect of the distribution of services in higher education, two factors need to be emphasized: the availability of those services that refer to a location and modality of providing services, and intermediation in their provision. In this segment, the importance of modern communication technologies should not be surpassed. Their development alleviated the distribution of educational services, and formed new channels of distribution - *distance learning*, in that sense, surely represents unavoidable distribution channel.

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