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Visegrad Fund

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INTRODUCTION TO THE CHAPTER 7 (BELGRADE)

EDUCATION IN THE BEGINNING OF THE XXI CENTURY

Globalization is probably the most suitable word which describes modern economy. Computers and Internet changed the perspective of communication, business and education. Globalization and development of new technologies create what has become known as knowledge society making knowledge a major creative force.

Being competitive in that kind of environment becomes very difficult for everyone, companies, entrepreneurs and individual persons. All of them are trying to find a way to be competitive. The links between education and competitiveness have already been well established. European Union has also recognized significance of this link and incorporated it in economic plans. President of the European Commission, José Manuel Barroso, at the beginning of March 2010 presented a draft of the new economic strategy of the EU by the year 2020. The aim of this strategy is finding a way out of crisis and preparation of the EU for the next decade, and it is based on three key drivers: smart growth, sustainable growth and inclusive growth. First key driver, smart growth, is related to fostering knowledge, innovation, education and digital society; second, sustainable growth to making the EU products more resource efficient while boosting the competitiveness and third, inclusive growth in raising participation in the labour market, the acquisition of skills and the fight against poverty [18].

Education have not changed the main characteristics over the centuries. We have always had a teacher and a learner, but ICT changed the way of their interaction. Apart from traditional learning, educational system faced new forms, or customized version of the older ones. Distance learning has been a well known form of education, practically since it was in the form of correspondence. Today, with all technological solutions it is changing so intensively that we can speak of it as e-learning or Internet learning.

In this chapter we will discuss contemporary form of distance learning, its advantages and disadvantages, phases of development, methodology and quality. We would also give a brief report about distance learning development in V4 countries and in Serbia. Second part of this chapter focuses on SMEs sector and their employees as potential users of distance education. Theoretical considerations are supported with two empirical research. One concerns students' opinion about distance learning in Serbia and the other concerns attitudes of SMEs management toward distance learning and its applicability in improving of competitive advantages.

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ABSTRACTS

Part 1
Distance education is not a new way of learning, but its methodology radically changed over last twenty years with rapid development of personal computers and Internet as a global network. Almost every European country has some form of distance education, but there is a huge difference between western and eastern countries. Western countries have a long history of distance learning opposite to eastern countries which started to develop this form of learning after major changes in political views. This paper aims to present the constrains of this educational model and the current state of distance learning development in all V4 countries, Slovakia, the Czech Republic, Hungary and Poland and Republic of Serbia.
Keywords: distance learning, e-learning, education, Europe, Visegrad group countries

Part 2
Distance learning is not a new concept of education, but despite the large number of benefits, the possibilities of this form of education are not sufficiently exploited. SMEs sector has increasing significance in modern economy and employees in this sector make up an increasing share of total employment in most countries. The main characteristics of distance learning suggest that this is a very convenient way for additional education of employees, but there are a number of barriers that cause low interest. Europe has done a lot to establish the quality standards of distance learning, particularly in higher education, with most important Bologna process. The aim of this paper is to point out some achievements in Europe in the field of distance learning for employees in small and medium-sized enterprises. Also, short research on this subject in Republic of Serbia.will be presented.
Keywords: small and medium-sized enterprises, distance learning, e-learning, lifelong learning, education

1 SOME ASPECTS OF DISTANCE EDUCATION IN V4 COUNTRIES AND SERBIA

Introduction

Development of information and communication technology (ICT) caused a lot of changes in education, like in many other fields. Learning and education are based precisely on information transfers and personal interactions, so it is easy to find close connection between learning and ICT. Accordingly, contemporary form of distance learning is marked as learning that relies on modern ICT (or e-learning). It makes possible to overcome physical separation between students (learners) and teachers (professor, instructor). Based on new technical possibilities distance learning became a real challenge for many educational institutions, especially for high level of education.

There are a lot of papers and discussions about distance learning in scientific community, but also in policies, declarations and recommendations of public authorities, international organizations and institutions. Significance of this form of education on worldwide stage has increased along with increasing globalization and opening of international labour market. Before, education was mainly determined by national needs, values and resources, but virtual opportunities raise the competition in this field. Today, it takes many business features, overwhelmed with globalization and loss of national identity. On the other hand, distance learning provides creation of values similar to the most developed and most successful companies that operate globally. It can also help creation of *international workers* from poor and less developed countries for new age and modern economy.

Virtual classrooms are probably the perspective of future education, and someone can even ask a question: "Will the traditional classrooms with text books and live teacher be replaced by virtual ones?"

This paper attempts:

- To analyze perspective of future development of distance learning according to attitudes, needs and expectations of young generation,
- To analyze constrains of this educational model,
- To analyze the current situation of distance learning development in V4 countries and Serbia, and
- To assess the need for implementation of this educational model in high educational institutions in Serbia.

The first part is introduction, and in the second part we define basic of distance learning concept with all advantages and disadvantages. In the third part we present a brief analysis of distance learning in V4 countries and Serbia, and in the final, forth part we present the results of survey that we organized for faculty's students in Serbia.

Basics of distance learning concept

Distance learning has numerous definitions in literature and it has been a part of education system for long. The terms in use are: Distance Learning, E-learning, Online Learning, Virtual learning, Internet Learning and Web Learning, and they are more or less synonymous. All of these terms imply that the learner is at a distance from the tutor or instructor, that the learner uses some form of technology (usually a computer) to access the

learning materials, that the learner uses technology to interact with the tutor or instructor and other learners and that some form of support is provided to learners [1, p.4]. Therefore, educational process is in a form of distance learning if it has the following characteristics: [9, p.50]

- The quasi-permanent separation of teacher and learner throughout the length of the learning process (this distinguishes it from conventional face-to-face education);
- The influence of an educational organization both in the planning and preparation of learning materials and in the provision of student support services (this distinguishes it from private study and teach yourself programmes);
- The use of technical media – print, audio, video or computer – to unite teacher and learner and carry the content of the course;
- The provision of two-way communication so that the student may benefit from or even initiate dialogue (this distinguishes it from other uses of technology in education); and
- The quasi-permanent absence of the learning group throughout the length of the learning process so that people are usually taught as individuals rather than in groups, with the possibility of occasional meetings, either face-to-face or by electronic means, for both didactic and socialization purposes.

It is very important to know that distance learning concept emerged long before ICT revolution, but this form of education started to be a subject of theoretical and practical interest with mass use of personal computers. At the same time, new technologies became a large part of traditional, face-to-face educational process.

At the beginning, new technologies were just a transmitter of information and data, but latter that has changed. Today we use it for creating adequate educational methods in line with users (learners, students) needs. Major contribution to this field belongs to Khan, Cooper, Bonk and Reynolds, Kozma, etc. This form of education is much improved from the first ideas, and lots of problems have been solved since then.

Historically speaking, learning by correspondence was root of distance learning. We can find first forms of distance learning in the early 18th century. The ad with the following contents: "*Caleb Phillips, Teacher of the new method of Short Hand is seeking students for lessons to be sent weekly.*" was the trace of first step in this field [6, p.13]. However, the middle of the 19th century can be considered as a true beginning. Firs forms relied only on writing materials, which teachers prepared for learners and latter on, traditional consultations were replaced by written communication between them. After the initial experiences and success distance learning continues to evolve. The University in London was the first university which included distance learning program in its syllabus in 1873. Much later, in 1911 University of Queensland developed *Correspondence Studies*.

After the Second World War development of distance learning concept gets new forms that have been enabled by ICT development. Today, it is impossible to organize high quality distance learning program without electronic devices – computers and global network, the Internet. This is the reason why we can minimize „the quasi-permanent separation of teacher and learner throughout the length of the learning process" from the distance learning definition. Modern technology enables online communication in real time and teacher can establish communication between learners with voice and picture in the same way as in the physical space.

The development of distance learning is directly determined by the pace of technological progress, and so far it can be divided into four phases or generations: [2, p. 21]

First generation or the Correspondence model had the following characteristics: one-way information, slow delivery by post, slow interactivity, indirect and asynchronous teacher –student communication, and no communication between students. Teaching relied mainly on printed materials, and subsequently on phones, TV and radio. **Second generation or the Multimedia model** had more or less the same characteristics as the previous model, but in this phase there were much more various media in use (audiocassettes, video cassettes, fax machines as a transmission channel and computer based learning). **Third generation or the telelearning model** brought changes into the learning process. The new technology allowed for an interactive regime between students and teachers, and students were also able to communicate among themselves. There was synchronous and asynchronous communication, it was possible to conduct individual and group sessions, and the available additional media was e-mail, chat, computer programs and resources on CD and Internet, audio-conferencing and videoconferencing in big rooms with large audience. **Fourth generation or The flexible learning model** "flexible learning can be seen as both a condition of and contributor to changes in the social and economic division of labour, the organization and management of work and production, and the management of workplace culture. Flexible learning is also, from an educational perspective, about the appropriate provisions required to meet such changes. Traditional knowledge canons and pedagogy are increasingly seen as inflexible, challenged and displaced by more flexible contents and modes of learning regarded as more congruent with the flexibility in labour processes, markets, products and patterns of consumption that characterise post-Fordist processes of flexible capital accumulation."[11] This model or phase relies on high bandwidth transmission for individualized, customized and live video interactive learning, as well as desk conferencing via land, satellite, cable and phone technologies.

Distance learning education has its advantages and disadvantages, like all forms of education. Benefits can be seen from three angles: angle of learners, of educational institutions and of global society. From the perspective of learners' most important advantage is *ability to learn regardless of space and time* and they can adjust the process according to their aspiring or needs. This type of learning is most suitably for those who are geographically dislocated or have some kind of physical disabilities or for employee who cannot attend traditional classes. At certain levels the process can be totally tailor made, which is not the case in traditional education system. Another advantage is *lower costs*. From the standpoint of institution, the benefits are increasing of capacity at lower costs, and from the perspective of society the main advantage is a uniform distribution of knowledge.

There are also some disadvantages and the most important is the problem of maintaining the *motivation* without direct contact between the teacher and the learner or learners among each others. *Lack of socialization* is another problem connected with progress factor. Beside these, socio-psychological problems, *low level of network infrastructure*, which can be able to support contemporary distance learning process, and *insufficient computers and technology skills*, can be insuperable problem. This can be particularly applied on poor and undeveloped countries, areas and individuals. But, the progress of society and continuous development of techniques reduce this obstacle, so last year 92% of household in Iceland owned computers, and Serbia reached the 41%[2]. The speed of central processors is doubled every 18 months, until the price decreases by 50%. We also must be aware that we have new generations of young people which were born and play with computers. That world is genuine world for them; they do not feel it as virtual. They will be the primary target group of education based on the Internet revolution and they will overcome these problems and constrains.

We also must be aware that regardless of the shortages that are related to distance learning, there are situations in which there are no other alternatives which are good enough. One of the most important is education (formal and informal) of employees in the process of lifelong learning.

Distance learning in V4 countiries and Serbia

In early 1990s, the countries that are in the EU today started many reforms in educational system, in different fields and levels. In most of these countries, regardless to the type of reform, reformers insisted on decentralization, increase in significance of elementary education, and rise of young generation's abilities for critical opinion and conflicts resolution. They also made an international educational system and connected all European countries. The main purpose of this process was building the society with investments in knowledge, learning, and training, where everyone will be able to build a desired level of qualification – *a knowledge society*. Distance learning in formal education is, for sure, one of the most important parts of this goal.

In SEE area distance learning did not develop at the same way and at the same intensity like in other European countries. Western European countries have developed, as a part of their educational systems, various forms of learning. One of those forms is distance learning which was implemented in accordance with their economy, culture, geographical conditions, etc. In countries with huge population, like China, Brazil, Australia, distance learning has a long history and tradition, primarily due to geographical factors. Instead of them, in SEE countries this kind of education did not have stimulus because of ideology. Alternative ways or forms of education did not exist.

The countries of Visegrad group and Serbia subsequently became involved in the process of developing distance learning programs, through international projects or self initiative. In this course they faced a numerous problems and constrains, but started process has never been interrupted. Development of high quality distance learning programs is their common goal. Analysis of the prerequisites for the development of distance learning has pointed out several key points. These are primarily ICT level of development in the country, cultural, regulatory[46] assumptions, and motivation of target groups.

ICT, business, social, legal and cultural environment in V4 countries and Serbia

ICT level of development is more or less uniform in all V4 countries, while Serbia significantly lags behind. Report *E-readiness rankings* for 2009 made by *Economist Intelligence Unit*[47] in cooperation with *The IBM Institute for Business Value* is one way to figure the real situation. *E-readiness* is a measure of the quality of a country's ICT infrastructure and the ability of its consumers, businesses and governments to use ICT to their benefit. Over 100 separate criteria, both qualitative and quantitative, are evaluated for each country by the Economist Intelligence Unit's team of analysts. These criteria are scored on their relative presence (or lack thereof) in a country's economic, political or social landscape. Table 1 consists scoring criteria and weights for rank score.

[46] Regulation within accreditation and certification process of education - related institutions.

[47] The Economist Intelligence Unit is the world's foremost provider of country, industry and management analysis. Founded in 1946 when a director of intelligence was appointed to serve *The Economist*, the Economist Intelligence Unit is now a leading research and advisory firm with more than 40 offices worldwide. For over 60 years, the Economist Intelligence Unit has delivered vital business intelligence to influential decision-makers around the world. Our extensive international reach and unfettered independence make us the most trusted and valuable resource for international companies, financial institutions, universities and government agencies.

Table 1 – Criteria and weight for rank score

Connectivity and technology infrastructure	20%
Business environment	15%
Social and cultural environment	15%
Legal environment	10%
Government policy and vision	15%
Consumer and business adoption	25%

Reference: own

As we can see, the main impact in score have consumer and business adoption with 25% and connectivity and technology infrastructure with 20%. Smaller, but the same impact on score with 15% have business environment, social and cultural environment and government policy and vision. Government policy has an impact of 10%.

Table of ranks and scores shows the result of analysis for 70 countries. The lowest score on the list for 2009 has Azerbaijan (2.97), and the highest Denmark (8.83). Most countries have declined in score value in 2009 in comparison with 2008. The reason for that is financial crisis in the second half of 2008. All countries in V4 region are the part of this analysis but Serbia is excluded. Table 2 consists ranks and scores for the first two countries, V4 countries and last two countries in the list.

Table 2 - Economist Intelligence Unit e-readiness rankings and scores, 2009 (excerpt from the table)[48]

2009 rank (or 70)	2008 rank	Country	2009 score (of 10)	2008 score
1	5	Denmark	8.87	8.83
2	3	Sweden	8.67	8.85
31	31	Czech Republic	6.46	6.68
35	33	Hungary	6.04	6.30
36	36	Slovakia	6.02	6.06
39	41	Poland	5.80	5.83
69	66	Kazakhstan	3.31	3.89
70	69	Azerbaijan	2.97	3.29

Reference: own

In the recent history world economy was striken by few severe shocks. It is very interesting to notice that "in contrast to the last major crisis of a decade ago, however, global confidence in information and communication technology and the virtues of digital development remains intact." [3, p.2] Based on these global data we can observe small decline of scores in V4 region, but it didn't change their general position in the table. The reason for that is decline of average scores. The Czech Republic, with scores 6.68 in 2008 and 6.46 in 2009 and Slovakia, with scores 6.06 in 2008 and 6.02 in 2009, kept their position in 2009 overall table. Hungary declined from 33th to 35th place, with scores 6.30 in 2008 and 6.04 in 2009 and Poland increased from 41st to 39th place with scores 5.83 in 2008 and 5.80 in 2009. Figure 1 shows relative relationship between countries.

[48] Complete table can be found at: *http://graphics.eiu.com/pdf/E-readiness%20rankings.pdf*

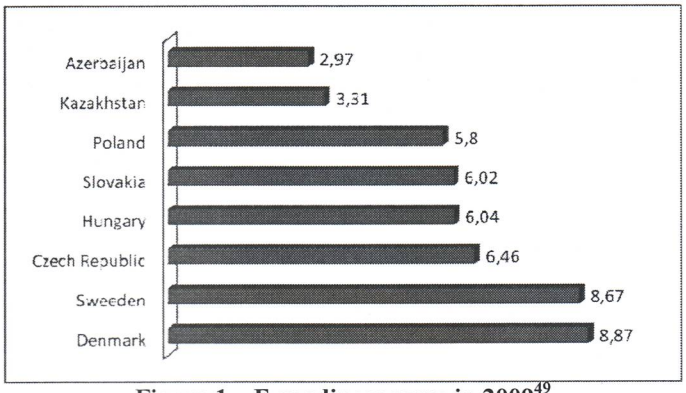


Figure 1 – E-readiness score in 2009[49]

Republic of Serbia, as we already stated, is not included in *Economist Intelligence Unit* analysis, but based only on data in *Connectivity and technology infrastructure* report, we can conclude that its place in a rank table would be behind all V4 countries.

In order to include Republic in Serbia and make a global picture for all countries, we will analyze some additional data from Eurostat databases and Report of Usage of information – communications technologies in the Republic of Serbia for 2009. As a result of that analysis, we can see percentage of households that possess a PC in Figure 2, and households which have a broadband access in Figure 3.

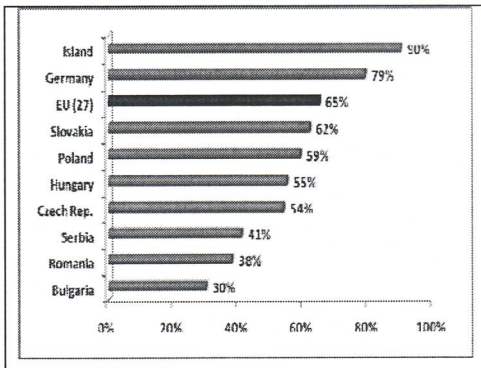


Figure 2 - Percentage of households that possess a PC in European countries in 2009

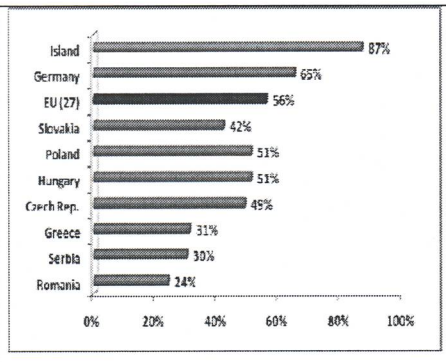


Figure 3 - Households which have broadband access in European countries in 2009

Reference: of data: *http://epp.eurostat.ec.europa.eu/portal/page/portal/information_society/data/main_tables* for EU countries and *http://webrzs.stat.gov.rs/axd/en/dokumenti/ict/2009/ICT2009e.pdf* for Republic of Serbia

We can make a conclusion that V4 countries have very solid ground for development of distance learning programs from this perspective. Those countries have acceptable ICT infrastructure, business, social, legal and cultural environment. Serbia, unfortunately, lags behind and this is a great obstacle for distance learning development.

In the next part of this paper the main characteristics of the development of distance learning in the V4 region and Serbia will be described.

[49] Figure made by authors with data from *http://graphics.eiu.com/pdf/E-readiness%20rankings.pdf, p.5*

Slovak Republic

Learning of adults in Slovakia was not important until recently, and consequently distance learning was on the low level of development. Nevertheless, during the last twenty years the need for substitution of paper-based learning with e-learning has been observed, which is the key assumption of contemporary distance learning concept.

A big multi-country project, which has established reliable basis for development of distance learning in Slovakia, started in 1994. The project entitled Phare had two phases and finished in 1999. Five different local centers of distance education have been established within this project, all of them as so called "special purpose units" (local distance education centers) at the following Slovak universities: Slovak University of Technology in Bratislava, Technical University in Zvolen, Technical University in Kosice, Slovak University of Agriculture in Nitra, and University of Zilina. Coordinator of project was Distance Education Centre based in Bratislava at the Slovak University of Technology.

After that, noteworthy project called Leonardo da Vinci program[50] – development of an e-learning web portal eEDUSER - was implemented. Contractors and coordinators of this programme were Technical University of Kosice, Slovak Republic Faculty of Electrical Engineering and Informatics.

After basic steps, Slovakia eventually has opted for hybrid system of distance learning' development, i.e. for development of distance learning programs directed toward completion of traditional education offer. General property of this sort of education in Slovakia is self-motivation rather than support by appropriate national policy.

In addition, with regard to large ethnic group of Hungarians in Slovakia, Dennis Gabor College is also important representative in the field of distance learning.

Hungary

Under the influence of eEurope+ initiative, Hungary has developed considerable programs towards development of information society. The major obstacles were similar to those which were present in other EU countries, but different regarding level and direction - relatively small capacities of single users, high prices of computers and telecommunication services and high elasticity of demand in this sector; educational system which is not properly equipped with modern ICT and conservativeness of educational institutions make situation even worse.

However, Hungary is assessed with higher e-readiness rank relative to other countries of V4 region, which place it at a better position for development of distance learning. On the other side, the key obstacle to further involvement of Hungary into wide framework of European distance learning community is a relatively small Hungarian-speaking population.

Generally, In Hungary one can identify several essentials with positive impact on development of distance learning: development of e-learning awareness, development of infrastructure, government initiative toward stimulation of demand (tax deductions programs, founding of development institutions, government assistance to teachers and scholars for software equipment etc.), development of standards, development of reliable certification system for institutions, development of process of accreditation and support to innovations in education.

[50] The Leonardo da Vinci programme links policy to practice in the field of vocational education and training (VET). Projects range from those giving individuals the chance to improve their competences, knowledge and skills through a period abroad, to Europe-wide co-operation between training organizations.

Development of distance learning in Hungary exhibits trend of increasing popularity, especially within high education. According to some assessments, 60% of scholars included in this sort of education are students. In addition, it is expected that in accordance with lifelong learning strategy especially in the field of public service and business, as well as to non-profit organization included, distance learning development would significantly influence further development of SMEs sector. This is especially important in the light of limited capabilities (in terms of money, time and organization) of employees in this sector.

In Hungary, after initial euphoria, realistic goals have been defined, starting from need and capacities of youth with respect to increasing availability of the equipment required for implementation of this sort of education to users. In addition, matching of technology from one side and methodology of teaching from the other side have also become an objective. The society has become aware of the importance of achievement of critical level of distance learning, from primary education to vocational courses, over high education and corporative trainings, leading to additional economical use of new technology.

In 2004 Ministry of Informatics and Communications started Public-net program with objective to provide all schools with Internet links and multimedia labs. As the result, all high educational institutions were equipped with Internet links via National ICT Infrastructure Development (NIIF) network, which is assessed as important step of Hungary within distance learning.

The biggest problem concerning distance and e-learning in Hungary is absence of systematization in learning methodology. In the future, removal of this limitation should be state as primary goal.

Czech Republic[51]

The term distance education began to appear in professional education terminology of the last decade of the twentieth century. Over time it became very important element of educational system in the Czech Republic. Fundamental changes about distance learning are consequences of support of the European Commission, at the first place. Between 1995 and 1999 European Commission via a project named *Multi-country Co-operation in Distance Education* within Phare programme[52] supported development of this kind of education in Eastern and Central Europe.

The precondition of the implementation of the project was the establishment of the national co-ordination unit, which gave an impulse to the foundation of the *National Centre for Distance Education - NCDE* (*Národní centrum distančního vzdělávání (NCDiV)*. Another outcome of this project was the construction of technically well-equipped network which consists of the four *Centres for Distant Education*: J.A. Komenský Academy in Prague, Technical University in Liberec, Brno University of Technology and Palacký University in Olomouc. These four *Centres,* together with the National Centre for Distant Education, form the basis of the *National Network for Distant Education in CR.* The centres are equipped with office machinery (fax machines, telephones, answering machines, photocopiers etc.), IT equipment (state-of-the-art computer classroom, high-performance server, Internet connection) and with a library for distant education containing up-to-date foreign as well as national literature from the field, samples of home and foreign distant education courses etc.

[51] *http://www.csvs.cz/_en/structure/ncde/index.shtml*

[52] We already mentioned it in context of distance learning in Slovakia.

After finishing this project NCDE focused its activities on development of ICT, educational process, coordination activities and experts in this field, as well as development and research.

Information activities concern mainly the provision of information to general public, especially to potential clients of this type of education. With the growth of general awareness about this form of education and as the information about the opportunities of its application spread in the society, the number of those interested in distant education grows rapidly. It is very important to mention the *Library of Distance Education*, as an essential resource. The Library contains the best foreign literature in the field that covers both the theoretical and the practical aspects of distance learning, as well as all relevant home expert literature. A comprehensive database of the NCDE library is available on the Internet. *NCDE educational activities* concentrate mainly on an education course for the distance education staff and *co-ordination activities* concentrate mainly on the mutual sharing of information and interconnection of activities of the individual Centre for Distance Education and their link with the local organisational units at the universities and other educational facilities in the Czech Republic. This co-ordination activity grows out of the needs of the actual regional institutions, but the significance as well as the frequency of such activities grows continually. The staff of the Centre provides *consultancy and expertise* mainly for the Ministry of Education and for the Accreditation Committee and The *research* in the area of distance education has started with the establishment of NCDE. It focuses mainly on the solution of theoretical issues related to the development and launching of new learning technologies as well as on the solution of practical issues related to the methodology, organisation and implementation of distance learning in the Czech Republic.

Poland

Poland more or less follows other V4 countries in the field of distance learning, so state and perspectives of its developments should be considered within development of this field on global and, particularly, European level. Similar to previously described countries, Phare project played key development role in Poland. Within this project, eight centers for long life learning were established in Poland, which further have been developing distance learning as education method. Observable results of this initiative are centers equipped with appropriate equipment and development of educational modules and courses in collaboration with colleagues from Western Europe.

Similar to other countries, Poland has experienced certain constraints to further development of this sort of education. One of them is absence of systematic support. Since 1989, Polish Government hasn't defined clear strategy within this field, and first initiative to found special institutions in this field emerge in 1993, but this early initiative was followed by slow advancement. Recently, Ministry of Science and High Education put serious effort in this field and in 2007 announced Act on requirements (for methods and techniques of education) which educational institutions should satisfy to become eligible for the organization of distance learning programs.

Other features of distance learning development that could be identified are steady increase in interested population different by age and needs and decrease in costs related to growth of students, which additionally encouraged development. Also, it is important to emphasize the increase in awareness that distance learning integration into existing educational system (hybrid model) is the most accurate development model, and the need for adjustment of model to Anglo-Saxon's system of education

The most important institutions recognized as leaders in this field Distance Learning Centre at Warsaw University of Technology, Open and Multimedia Education Centre at Warsaw University, Distance Education Study Centre at AGH - University of Science and Technology and Polish Virtual University (PUW) - joint project of Maria Curie-Sklodowska University in Lublin and Academy of Humanities and Economics in Lodz and Center for distance learning in rural areas. In addition, there are important associations such: Association of Academic E-learning, Association Education by the Internet, and Polish Scientific Society of Education by the Internet and E-learning Association.

Direction of Poland towards development of distance learning as one of the forms offering large facilities to employees for lifelong learning could not be doubted. Webpage which actively tracks ongoing in this field could be retrieved from http://elearning.pl.

Republic of Serbia

Development of distance learning in Serbia is at a very low level, but has been improved after the introduction of the Bologna standards in education. The main obstacle is lack of institutional support, which would be realized through financing of projects, infrastructure and education of teachers.

Serbian education, in the field of distance learning, is characterized by the following: [2, p. 22]

- Low awareness of the management in educational institutions of the possibilities and e-learning implementation process;
- Small number of schools and faculties that have developed e-learning option;
- Very poor quality of teaching materials;
- Low level of IT support;
- Very low motivation of the teaching staff;
- Resistance on the part of the management and teaching staff;
- Inherited preference for the traditional way of the teaching process (majority of them see the traditional educational process as the only possible method);
- Lack of high skilled teachers/professors, low level of IT education/knowledge among teachers/professors;
- Lack of project management in the area of e-learning;
- Lack of formal education for teachers/professors, rendering them unfit to manage e-learning process;
- Low level of autonomy in the decision-making and highly centralized decision-making process;
- Country's poor IT infrastructure;
- Inadequate current standards that stifle initiative.

Development of distance learning programs in Serbia, until now, relied only on initiatives of the individual educational institutions. Many faculties have some form of distance learning, but it is not built on solid basis, and very few faculties use distance learning platform to provide a connection between professors and students. If we look at the situation seriously we can even notice that some faculties used distance learning as a legal way for increasing the number of students, without additional investments. They provided just an e-mail communication with students, face-to-face consultations once a week or less, and printed textbooks as a learning material. Ministry decided to end this with clear requirements in the process of accreditation, because Serbia has a final objective to develop distance learning education with all characteristics of modern e-learning process.

Research

In order to get opinion of young generation about distance learning we examined students at all levels of studies using a sample of 210 respondents. Structure of sample according to student's status was: 185 regular students and 25 employed, and according to gender 129 female and 81 mail students.

First, we examined level of their awareness about distance learning with the following questions:

1. Are you familiar with the concept and possibility of distance learning model of education? and
2. Do you know educational institutions in Serbia which offer distance learning as study option?

Regarding the first question only 16% of respondents are fully familiar with the concept and possibilities of distance learning, 59% is partially familiar, but not enough and 25% is not informed at all.

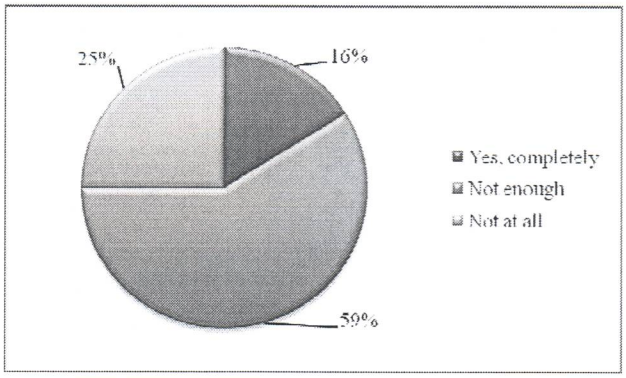


Figure 4 – Q: ***Are you familiar with the concept and possibilities of distance learning education?***

These answers show that young people in Serbia have very poor knowledge about distance learning and its possibilities, so we cannot expect much interest for it.

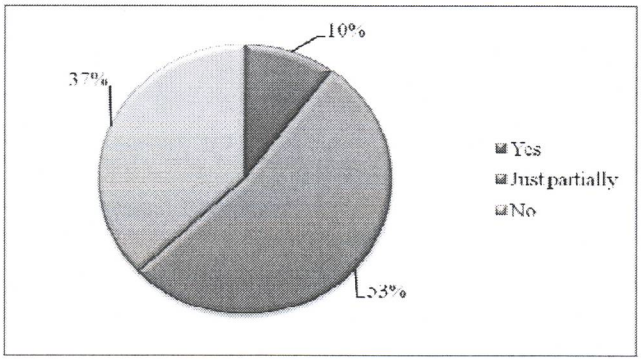


Figure 5 – Q: ***Do you know educational institutions in Serbia which offer distance learning as study option?***

Second question covered general knowledge about institutions that have distance learning programs. According to low level of knowledge about concept, we could expect answers on second question, and only 10% have information about those institutions, 53% are just partially informed, but not enough and 37% are not informed at all.

These results show that even those institutions that have distance learning programs do not have appropriate marketing activities to approach potential students.

The next question was:"Why did you choose a traditional way of studying instead of distance learning?" and multiply answers were allowed.

The following answers were offered:

a) I did not find adequate educational program in the area of distance learning I was interested in
b) I am not sure about quality of distance learning
c) I do not have technical requirements needed for this learning
d) I do not know if the degree received after distance studies is recognized in our society
e) I believe that the learning is more efficient when I communicate face-to-face with teachers and other students
f) I am not ready to sit in front of computer alone and learn in a virtual world
g) I do not think I have discipline and work habits to manage responsibilities and time needed for learning
h) I believe that socializing with my peers during studies is important for learning and personality building

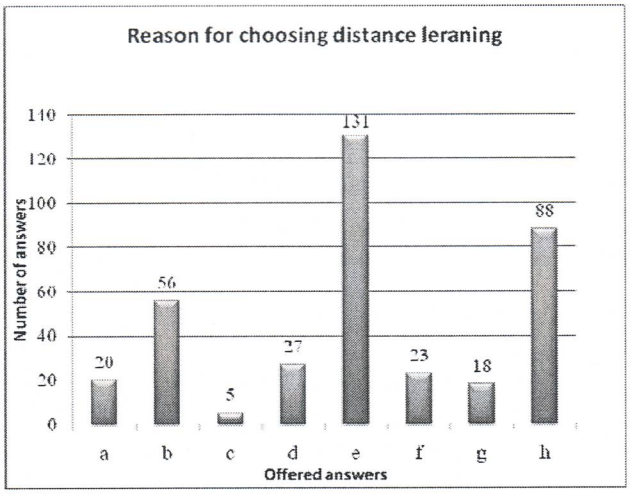


Figure 6 – Q: ***Why did you choose traditional way of study instead of distance learning? (absolute values)***

It is very interesting that the major share of answers, 36% was under (e) and 24% under (h) option, which shows that young people give high priority to communication with their colleagues and professors during their studies. For them, the study is a form of social event and chance to build a social network. In addition, 15% are not sure about quality of distance learning and this is result of poor organization and neglection of the quality in the past.

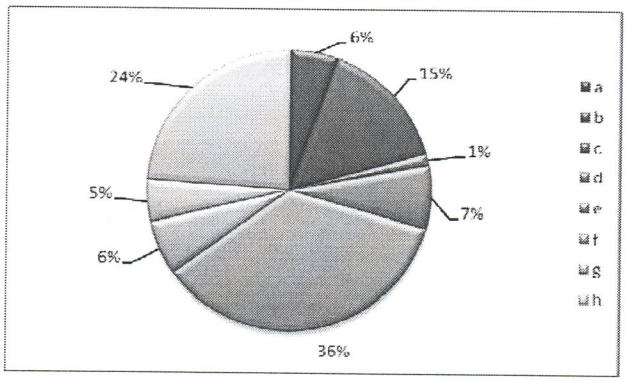


Figure 7 – Q: ***Why did you choose traditional way of study instead of distance learning? (relative values)***

This result was confirmed additionally with next question, about active distance learning students. The question was "Does someone of your friends attend distance learning study program?" Almost a half of the respondents (45%) do not know anyone who attends distance learning study program, 30% could not know the answer on this question, and we had only 25% of positive answers.

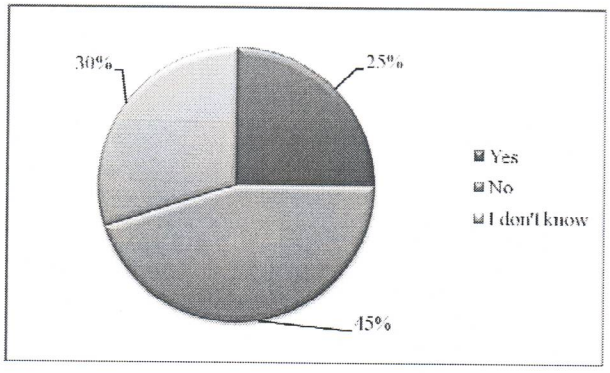


Figure 8 – Q: ***Does someone of your friends attend distance learning study program?***

As an advantage of distance learning more than a half of the respondents (58%) sees advantages in flexibility of time for learning, and just 19% think that it is very good way for extension of domestic or international offer in the area of education. Lower cost is an advantage for only 15%, and easier way to finish studies is the choice of just 8% of the respondents.

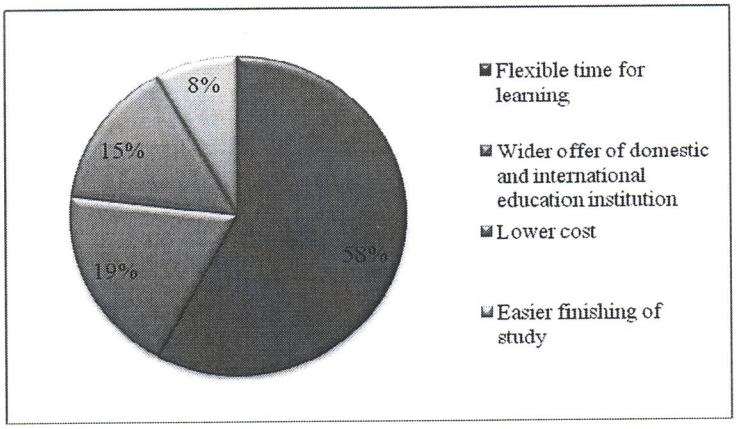


Figure 9 – Q: ***In your opinion what are the advantages of distance learning?***

Answers impose conclusion that flexibility of time is the most important advantage in student's perspective.

Relative to these answers we can interpret the answers about convenience of distance learning for certain target groups and forms of education. The major number of the respondents (79%) have opinion that distance learning is suitable for employed students or for informal forms of education (18%). It is very interesting that only 2% of the respondents have opinion that distance learning is suitable for young, unemployed students.

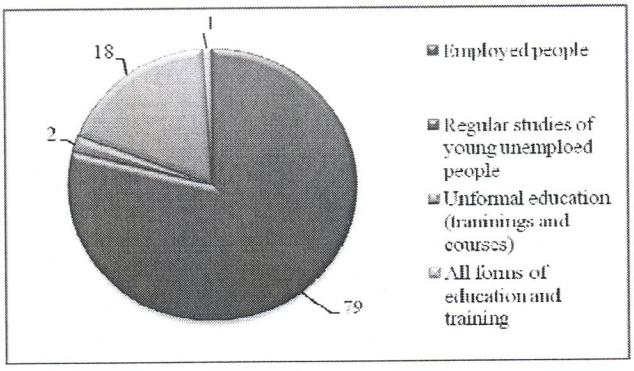


Figure 10 – Q: ***For whom is distance learning suitable?***

We also had a question "Will distance learning programs be acceptable if they would be: a) cheaper than traditional education, b) accredited with recognized diploma and c) well organized."

The most of the respondents (43%) believe that good organization of distance learning is crucial, and 42% think that it is very important to have accredited institution which issues recognized diplomas. This can be an indicator of some sort of distrust in distance learning, while at the same time they consider that traditional education is well organized and safer.

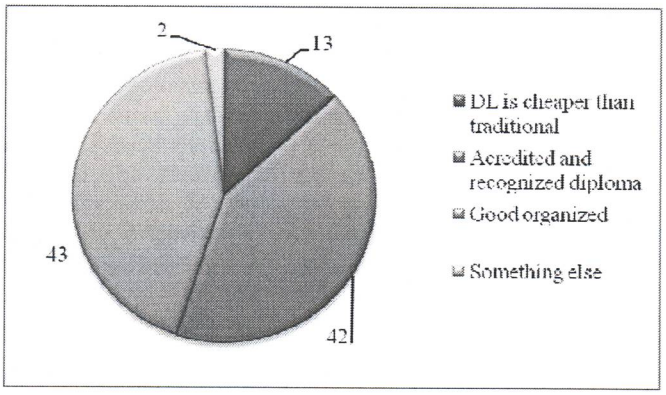


Figure 11 – Q: ***What is the most important for distance learning to be more acceptable?***

At the end we had an intention to check the student's opinion if their faculties should implement distance learning[53]. The answers were split and 47% of students think that their faculty should implement distance learning, 21% does not agree with them and 21% is not sure about this matter.

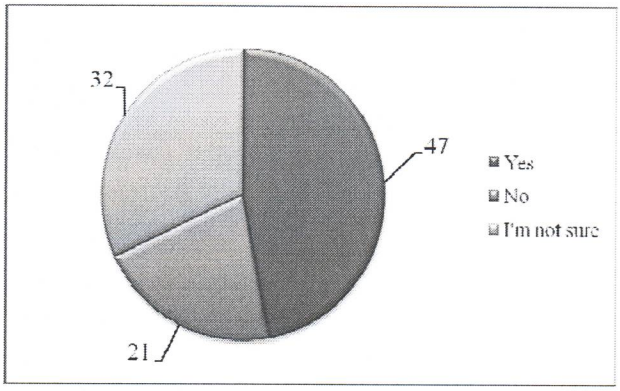


Figure 11 – Q: ***Do you thing that your faculty should implement distance learning program?***

Generally speaking, results of this survey, despite certain methodological shortages, show that young people in Serbia do not have appropriate information about distance learning. We can also conclude that trust in educational institution and programs are more important than price of education. The social moment is one of the main reasons why they prefer traditional, classroom education. This survey is probably one among many which confirms that distance learning form of education is still more suitable for employed people, who can adjust the time and place for learning to their needs. Thus, educational institutions in Serbia will have to inform public about possibilities and advantages of distance learning much more. They need to build a better organization of learning process and the system of accreditation. Only in that way they could build trust and get new students.

[53] We examine students in two different faculties in Belgrade and Novi Sad. Both of them do not have distance learning programs.

Conclusion

In the future we can expect much more participation of contemporary form of distance learning in higher education. There are few reasons for that. First of all, younger generation is much more familiar with information and communication technology and they use it to get all sorts of information and to communicate to each other on daily basis. Because of that we can anticipate greater interest of this form of education. On the other hand, educational institutions are facing the problems of handling large number of students, large costs for educational facilities and the competitiveness in hostile environment. The situation becomes much more complex in EU, because the Bologna process is forcing mobility of students within the EU. Students now have an opportunity of choosing the appropriate faculty, so institutions have to offer more.

We also conclude, from the references, with confirmation of the Serbian student's questionnaire that the biggest constraint of distance learning is the lack of social interaction between students, which cause the lack of persistence. Obviously, students need great motivation for learning because they are not in a position to independently assess their learning needs. From the teacher perspective the problems arise in the area of class preparation. The practice showed that they need much more time to prepare teaching materials, sometimes even twice as much.

Universal obstacle in development of distance learning is the state of usage of ICT. We analyzed the state in this area in each V4 countries and make the following conclusions. The situation in V4 countries is much better than in the Republic of Serbia. V4 countries have very solid ground for development of distance learning programs, but Serbia is behind and this is a great obstacle for distance learning development.

Our analysis shows that all countries in Visegrad group have distance learning in their high level educational system. They try to build up this concept like western European countries, because that countries have long history and much more experience in this field. In education development the EU helped new members through projects like Phare and Leonardo da Vinci. The V4 countries also have solid technical infrastructure, so this should not be an obstacle for further development of distance learning.

Unlike V4 countries, the Republic of Serbia has much more difficulties. The general level of ICT development and infrastructure is lower. There was not any systematic action from the Ministry of Education in this area until few years ago. Last year the Commission for Accreditation and Quality Assurance of the Republic of Serbia started to create standards for contemporary distance learning studies with all characteristics of distance and e-learning. They also include in process of accreditation those who can make expertise of high quality.

We conducted a survey among students in Serbia and that analysis shows that there is some interest for distance learning, despite of all obstacles that Serbia encounters. The main problems are the lack of awareness regarding distance learning programs in higher educational institutions and suspicion on quality of learning process and degree. On the other hand, students in Serbia see the distance learning more suitable for the employed people and for informal education (trainings and courses). Those conclusions coincide with the ones from other countries.

After all, it is obvious that distance learning is a part of future education in all forms and levels. Both, students and educational institutions have the interest for that. Process that once started will keep on going.

2 DISTANCE LEARNING AS AN OPTION FOR SMALL AND MEDIUM-SIZED ENTERPRISES

Introduction

Rapid development in the field of informational and communicational technology, along with constant changes in the global market, has created new challenges in the field of education. In new conditions, formal educational system has been forced to provide better environment for learning, without increasing costs. Some institutions find the solution for this problem by developing distance learning programs. Current concept of distance learning, which includes the use of all technological achievements, is much more different in relation to the initial concept, which was set in this area many years ago. Thanks to technological progress, even physical separation between teacher and learner is no longer a constraint, because now they have abilities to organize audio-visual discussions in real time. These features provide completely new dimension for distance learning and as a result of that we can expect much more participants.

Despite efforts to follow the changes in the contemporary world of labour, the educational system has too long cycle of at least three years. Sometimes it is very important considering the fact that in some areas of technology work process has changed on annual basis. Therefore, the organizations have realized the importance and need for continuous training of workers as a basis to increase their flexibility and overall performance. This is expressed through the concept of lifelong learning and learning organizations. Learning with work requires flexibility in time and place of learning, and it could be provided by modern concept of distance learning.

Small and medium-sized enterprises are able to adjust very fast to the requirements of the environment. To achieve such dynamics, management and employees have to be able to learn quickly and to coordinate business needs and opportunities with mainly individual learning process. These organizations are not able to provide the infrastructure or the time for the group formalized learning. Therefore, the distance learning concept is recognized as a great chance for SMEs. This is very important for Europe, because employees in small and medium-sized enterprises make a big part of total employees, because the 99% of all enterprises in EU belongs to SMEs sector, which employs around 65 mil people.

The European Council held in Lisbon 2000 decided that the EU should "... *become the most competitive and dynamic knowledge-based economy in the world...*" [19], and president of the European Commission, José Manuel Barroso, at the beginning of March 2010 presented a draft of the new economic strategy of the EU by the year 2020. The aim of this strategy is to find a way out of crisis and prepard the EU for the next decade, and it is based on three key drivers: smart growth, sustainable growth and inclusive growth. First key driver, **smart growth**, is related to fostering knowledge, innovation, education and digital society; second, **sustainable growth** to making the EU products more resource efficient while boosting the competitiveness and third, **inclusive growth** in raising participation in the labour market, the acquisition of skills and the fight against poverty. In his statement president Barroso pointed out: "*We need to build a new economic model based on knowledge, low-carbon economy and high employment levels*" [18].

In the world of very strong competition the EU is committed to the path of development of knowledge, innovation and digital technology. According to that, research and development has the major goal to close the gap between market and science. Significance of students' mobility in high education area, with the main target in better quality and

international attractiveness, got a new dimension. In addition, the creation of conditions for the modernization of the labour market and creation of new skills and jobs complete the set goals. The process of formal education is only one aspect of this issue. On the other hand, we have to mention a great number of programs that are developed within the framework of informal education.

In order to achieve objectives, especially related to the process of education, creation of skills and new jobs, it is necessary to develop modern education and training programs. The concept of distance learning is very important, as a part of this process.

This paper has attempted to analyse the following:

- Significance of distance learning as a form of education for employees in SMEs sector;
- Contemporary techniques of distance learning[54];
- EU efforts to provide quality in the field of distance education;
- Research in the area of distance and e-learning for SMEs in the EU, and
- Employees' opinion in SMEs sector in Republic of Serbia on the topic of distance learning.

Distance learning as a learning concept

There are a lot of definitions of distance learning, but all of them have one major similarity – physical separation between teacher and learner, as a basic difference from traditional process of learning. „Distance education is a generic, all-inclusive term used to refer to the physical separation of teachers and learners. The application of information technology (and infrastructure) to educational and student-related activities, linking teachers and students in differing places, is one of the main features of modern distance learning concept." [1]

Advantages of distance learning are the following: [21]

- Improved flexibility in time and location;
- Reduced costs for travel, accommodation and seminar rooms;
- Swifter and cheaper distribution of learning material;
- Quicker introduction of new products due to accelerated training of many employees;
- Increased sales because customers perceive e-learning as a sign of high competence and added value to the product;
- Improved relations with customers and suppliers, and
- Positive organizational effects.

Development of informational and communicational technology is extremely fast. Technologies that were considered historically as revolutionary achievements are no longer in use, because they are superseded by new and better solutions. Those solutions have enabled that traditional, face-to-face learning and distance learning show the same level of efficiency. Methods and techniques in contemporary distance learning are appropriate to teaching tasks, because there is a high quality interaction between teachers and learners, with very significant feedback from learners to teachers.

[54] In that case we can observe distance learning as an e-learning, despite some differences.

Distance learning techniques

Distance learning techniques are very important and participants in this process have a wide range of technical capabilities. All the techniques can be divided into four basic categories:

a) **Audio teaching methods** that allow transfer of information by voice or another sound. These methods are divided into two basic types. One-way audio methods include audio tapes[55], CD ROM or DVD with recorded lectures and radio receiver. The second method includes two-way (interactive) audio methods: phone, audio-conferencing and shortwave radio.

b) **Video teaching methods** that include still images - such as slides and moving images – films, and moving images combined with real time audio-conferencing.

c) **Methods based on virtual data.** Computers send and receive information electronically (via Internet), and that is the main reason for term *data* in the context of teaching method. The application of computers in distance education can be varied and may include:

- *CAI (Computer-assisted instruction).* Computer is used as a stand-alone device for presentation of individual lessons in this case.
- *CMI (Computer-managed instruction).* Computer is used to organize instructions and track learner's records and progress. The instructions do not need to be implemented by computer, although CAI is often combined with CMI.
- *CME (Computer-mediated education).* Those are computer applications for broadcasting of lectures.

d) **Printed materials** as a basic element of distance learning programs. All other methods had a root in this one. Teachers and learners can use various types of printed materials: textbooks, manuals, workbooks, course syllabi and case study materials.

Although technology plays a key role in the delivery of distance learning materials, teachers must worry about outcomes rather than technology of transfer. The key of effective distance education is focusing on the student's needs, content requirements and constraints faced by the teacher in the transfer method selection process. The common result of systematic approach to those problems is combination of different media. For instance, high quality printed materials can cover the most part of basic teaching content in the form of course texts, readings, programs and regular daily schedules; interactive audio and video conferencing can connect teacher and learners face-to-face or provide excellent and economical way for inclusion of guests or experts for specific subject in the teaching process; conference connection over computers or e-mail can be used for messages delivering, reports about the learner's tasks, all kind of questions and answers or improvement of interaction among learners; pre-recorded video materials can be used for class lectures and visually oriented content and distributed via Internet, etc.

[55] In most cases, audio tapes are obsolete media.

Characteristics and the participants in the distance learning process

The process of creating effective distance learning programs, with no excuse begins with careful planning and a focus on understanding the course requirements and learners needs. Appropriate technology can only be selected once these elements are understood in detail. Development of efficient programs for distance education is done through hard and dedicated work of individuals and institutions. According to that, we can recognize few categories of participants in this process. First of all, the **learners** whose need for acquiring knowledge is the foundation of any educational program, traditional or distance. This need includes many elements, among which the most important are the following: motivation, ability to analise and apply the instructional content and the benefit from the acquired certificate or diploma in the further life of career. When instructions are delivered at a distance, there are even more challenges. Learners are often separated and unable to exchange experiences and interests among each other or they have only few options (or not at all) to collaborate with teachers outside of the scheduled appointment or training, and they must rely on technical connections to cover the gap that separates them. The next participant is **institution** (school, faculty or any other institution which organize courses of any kind). The success of distance education to a large extent is based on the institution. In traditional learning process, with classroom organization, responsibility of teacher includes development of course content based on understanding of learners needs. In the case of distance learning the institution must help teachers to find the way how to understand the needs of those learners that they do not spend time with. That is the main challenge for institution. Practical organization of the process, computers, network and media design is the other challenge. **Teacher** (professor) is the next key category. As we mentioned, the main problem for teacher is to understand the need of the learners. He/she must understand them with limited face-to-face contact (if any). Then, he/she must adjust teaching styles taking into consideration the needs and expectations of multiple, often very diverse audiences, to develop understanding of delivery technology, to be the skilled facilitator and to provide all kinds of teaching materials. The teacher often relies on assistants, who are a bridge between learners and teachers. To become efficient, assistant has to understand the needs and expectations of students and teachers and has to follow the rules and regulations set by the teacher. In operational sense, assistants set up the equipment, deliver and collect the materials, monitor the exams etc.

Support stuff is a technical stuff and it is a very important chain in the process of preparation and realization of distance learning program. The most successful programs utilize services functions for student's support like transcription and distribution of all kind of materials, ordering printing materials (textbooks, manuals, etc.), planning events of all sort (test, exams, etc.), preparation of grade reports, technical resources management, etc. They are a really coordinating and conjunctive element that makes distance learning cost effective and functional. As the last, but not the least, process participant is **administrator** of distance learning program. They can be seen as technical support stuff, but there is one key difference between them – they can make decisions about plans for system's component. It is very important to provide constant relations between administrator and distance learning program, so they would not leave it only to support stuff. Reason for this stems from the fact that administrators keep the academic focus on the problems, so they can satisfy the needs of teachers and learners as well. This is the most curtail in the distance learning program in high level of formal education.

Profile of learners or students is another very important subject, because the profile defines **characteristics** of the distance learning programs. The reasons for choosing distance learning programs instead of traditional education can be varied. This is the main cause why

we cannot find a universal learner's profile in distance learning process, but instead we can highlight some common characteristics. Lots of learners that choose distance learning are *older employed, have families of their own and have special needs*. They must coordinate different aspects of their life that affect one another – the family needs, business needs, the needs for education and leisure. Institutions must be aware of the **motives** for distance learning, as well. Those motives cover on the one hand the desire for obtaining diploma or certificate in order to acquire better qualifications for the job, and on the other hand, many of them attend courses to expand their education and are not particularly interested in obtaining diploma. All those factors are very important in the process of creation of distance learning programs. In addition to profiles of students, we must focus for a while on some characteristics of the process of distance learning and the features which make it different from the traditional way of learning. In the distance learning the learner is **isolated**. There are no motivation factors arising from the interactions with other learners. The learners often miss the support of teachers who are not present to motivate them, and help them to get through some difficulties faced while learning. Distance teachers and their learners often have a little in common in terms of prior knowledge and everyday experience, and therefore it *takes longer to develop rapport between them.* Without face-to- face contact, distance learners can feel embarrassed , and because of that they may develop poor attitude towards learning. Some of these problems can be solved with today's technological solutions.

On the basis of the above, we can conclude that the creators of any form of distance learning program must carefully analyze the profile of their students, as well as their specific needs and motivation for learning. In addition, they must be aware of all the specifics of the process of teaching, to overcome any potential problems in the best way and provide a key value - the quality of distance education.

Quality in distance learning

The issue of quality of distance learning has become on one of the key issues in this area. In recent years many efforts have been made to ensure the appropriate systems and procedures to guarantee quality in the education sector. In the EU this subject has become very important over the last ten years. One of the visible steps taken to improve the quality of the high education is The Bologna Declaration, signed 1999 by foreign ministers of several European countries responsible for higher education. Signing the Bologna Declaration initiated the **Bologna process** aimed to create a unified European system of university teaching and research until 2010, while recognizing and retaining the diversity of national characteristics (culture, language, traditions, etc.). It was a way to create flexible and efficient higher education systems of Europe, which could be competitive on global knowledge market. So far, 40 European countries have signed the Bologna Declaration.

The Bologna Process is based on six action lines identified in the Bologna declaration (adoption of a system of easily readable and comparable degrees, adoption of a system essentially based on two cycles; establishment of a system of credits, promotion of mobility, promotion of European co-operation in quality assurance, promotion of the European dimension in Higher Education), three more agreed in Prague in 2001 (Lifelong Learning, Higher Education Institutions and students, Promoting the attractiveness of the European Higher Education Area) and one agreed in Berlin in 2003 (Doctoral studies and the synergy between EHEA and ERA – European Research Area) [15]. This process initiated the establishment of many national accreditation bodies in countries signatories of the Declaration. In addition, active international cooperation in this field has also emerged. However, one of the areas within higher education, which in the opinion of experts, is not

enough covered is distance learning, although it may contribute significantly to the overall quality of learning in line with the concept of mobility which is one of the main commitments in the Declaration. In the future, we can expect progress towards setting a framework for distance learning standards within the Bologna process.

In addition to the systematic approach, many European institutions have recognized this need and formulated individual standards aimed at ensuring the quality of distance learning and e-learning, but most of all in the field of formal education. We will analyze here the most important institutions and standards in the European higher education, because we think that this particular area is most advanced in distance learning, and it will make a positive effect on the other form of educational fields (informal education, courses, etc.) *The French Code of Practice – Information Technologies e-Learning* is one of the standards in the process of distance learning. It was created by AFNOR group[56]. This document has been written by French experts, and was intended primarily to be used in France only. The growing interest in best practices in e-learning at European and international level lead the French Forum for Open and Distance learning (FFFOD) to have this document translated into English, in order to facilitate its dissemination among expert groups or stakeholders interested in e-learning quality assurance or in e-learning standardisation processes. The guidelines in the Code are presented in six levels: Introduction, Analysis, Construction stage, Equipment stage, Implementation and Assessment.

In Great Britain Open and Distance Learning Quality Council in 1999 adopted (2000 they made a revision) *Standards for Open and Distance Learning (ODL QC)* to ensure good quality in open or distance learning, whether it is carried out by correspondence courses, e-learning, blended learning, home study or work-based learning. New Standards are the result of a more extensive revision undertaken in 2005, and released in December 2005. The Standards are subdivided into six sections: Outcomes, Resources, Support, Selling, Providers and Collaborative Provision. These standards apply across the whole range of ODL provision, though their implementation may differ from provision to provision. Further guidance on the interpretation of the standards is given in the *Good Practice Guides*. Some standards represent best practice, and failure to meet them may not necessarily debar a provider from accreditation but will highlight an area needing improvement for continuing accreditation.

The Quality Assurance Agency for Higher Education (QAA) is another institution in Great Britain which published some kind of standards named *Guidelines on the Quality Assurance of Distance Learning.* These guidelines offer advice on assuring the quality and academic standards of higher education programmes of study provided through distance learning. For the purpose of these guidelines, 'distance learning' has been taken to mean a way of providing higher education that involves the transfer to the student's location of the materials that form the main basis of study, rather than the student moving to the location of the resource provider. There is considerable debate, nationally and internationally, about appropriate terminology, and a number of different terms are commonly used which refer to the same or similar sort of activity. There is also great diversity in the large number of actual arrangements - and even more in potential arrangements - to which these guidelines are directed. It is composed of: Introduction; Guideline 1: System design - the development of an integrated approach; Guideline 2: The establishment of academic standards and quality in programme design, approval and review procedures; Guideline 3: The assurance of quality and standards in the management of programe delivery; Guideline 4: Student development

[56] AFNOR is an international services delivery network that revolves around four core competency areas: standardization, certification, industry press, and training.

and support; Guideline 5: Student communication and representation; Guideline 6: Student assessment; Appendix 1 Exemplifying questions; Appendix 2 The precepts; Appendix 3 The Working Group and Appendix 4 Other related publications

This group of institutions certainly includes The European foundation for Management Development (EFMD) which is a network organisation for business schools and operates The European Quality Improvement System (EQUIS). They conduct Accreditation process through *EFMD CEL – teChnology-Enhanced Learning Accreditation*, which is divided in six areas: Programe profile; Pedagogy; Economics; Technology; Organisation; Culture.

Program The *PAS 1032-1* (DIN 2004) (Publicity Available Specification) is developed by the Deutsches Institut für Normung e.V. Specification of this standard is based on practical experience, research and development in the field of education, with an emphasis on e-learning. The PAS 1032-1 process model follows the following process categories with possible challenges for e-learning in business: Requirement analysis; Context; Concept; Production; Introduction; Implementation; and Evaluation. DIN has also published a part 2 of the PAS 1032-1, Didactic objects model; Modelling and description of scenarios for learning, education and training.

In addition to the above mentioned institutions and standards which they have created and implemented, there are more important institutions, including eQCheck - Qualité-Learning Assurance Services Ltd. and NADE - The Norwegian Association for Distance and Flexible Education, which was one of the first in the field of quality assurance of distance learning.

Besides the standards Europe conducted a series of projects aimed at improving quality in the field of distance and e-learning. The most important are: TRIANGLE, Supporting Excellence in E-Learning - SEEL, The European Quality Observatory - EQO, Sustainable Evaluation Environment for Quality in E-Learning - SEEQUEL, Quality, Interoperability and Standards in E-learning - QUIS, Self Evaluation for Quality in E-learning - SEVAQ, Qual E-learning, European Quality in Individualised Pathways in Education - EQUIPE, E-learning Project Exemplo – Elex i EQUEL - Virtual European Centre in E-Learning.

Based on the experience in the past and position of modern distance learning, in all the spheres of education, especially in higher education, we can expect further expansion and deepening the quality subject.

Distance learning in European SMEs

The objectives of Lisbon strategy and the way out of the crisis in the EU can be seen through the promotion of knowledge and education. It is necessary to carry out significant changes at all educational levels in order to realize the goals. This applies to primary, secondary and higher formal education, but also to all forms of informal education. The knowledge-based economy has placed new demands on citizens who need more skills and knowledge to be able to function adequately in their day to day lives. Equipping the citizens to deal with these demands requires a new model of education and training, a model of continuing education which encompasses learning throughout the life cycle. No doubt, lifelong learning is crucial to preparing workers to compete in the global economy. It is very important for small and medium-sized enterprises to have an active role in the process, because of their significance in the EU economy.

SMEs are defined as enterprises in the non-financial business economy (NACE CI, K) that employ less than 250 persons. This definition is used for statistical reasons. In the

European definition of SMEs two additional criteria are added: annual turnover should be less than € 50 million, and balance sheet total should be less than € 43 million (Commission Recommendation 2003/361/EC). A rough estimate performed in the framework of this report shows about 1% of the enterprises having less than 250 occupied persons, has in fact over € 50 million turnover. The complements of SMEs - enterprises that employ 250 or more people -are large scale enterprises (LSEs). Within the SME sector, the following size-classes are distinguished: - Micro enterprises, employing less than 10 people - Small enterprises, employing at least 10 but less than 50 people - Medium-sized enterprises that employ between 50 and 250 people.

The significance and the position of SMEs in the EU economy is the result of the following characteristics: [16]

1. The EU non-financial business economy counts over 20 million enterprises, over 99% of which are SMEs (i.e., having less than 250 occupied persons). Within the SME sector, the vast majority (92%) are micro enterprises, having less than 10 occupied persons. The typical European firm is a micro firm.
2. Between 2002 and 2007, the number of SMEs has increased by over 2 million, the number of large enterprises by only 2,000. The new Member States show higher birth and death rates of enterprises than the old Member States. Most new firms are created in the service sector and are micro enterprises.
3. About two-thirds of total employment in the private sector is found in SMEs. Micro firms (which have on average 2 occupied persons) employ 30% of the total private labour force.
4. SMEs' contribution to employment growth between 2002 and 2007 (84%) has been much larger than it could be expected from their share in total employment (67%).
5. SMEs have a lower labour productivity than large enterprises. Thus, SMEs contribute a considerably lower share to value added (58%) than to employment (67%). Labour productivity is lowest in micro enterprises. Also, SMEs (and micro enterprises in particular) show lower profitability and employee compensation than large enterprises.
6. Micro enterprises appear to have a propensity to invest that is significantly above the average of the non-financial business economy.
7. In a globalizing economy, with large incumbent firms outsourcing and off-shoring production and jobs to low cost locations, SMEs are an important source of job creation.
8. SMEs serve as the key mechanism facilitating knowledge spill-over.

The special significance of SMEs is reflected in the participation of employees of this sector in total employment in Europe. Nearly 88 million people, 67% of all employees are working in private, non-financial SMEs sector. Between 2002 and 2007 total number of employees in Europe increased by 8.7 million, of which are 7.3 million in SMEs, and just 1.4 in LSEs (Large Scale Enterprises). According to that we can conclude that contribution of SMEs in overall European employment is impressive.

The key characteristic of contemporary European SMEs is knowledge through mechanism of knowledge spillover, which has "positive impact on economic performance for a number of reasons. The first is that it is a mechanism for knowledge spillover, because the spillovers are an important mechanism underlying endogenous growth. The literature identifying mechanisms actually transmitting knowledge spillovers is sparse and remains underdeveloped. However, one important area where such transmission mechanisms have

been identified involves entrepreneurship" [17]. In addition to their contribution to employment creation, SMEs also contribute to the dynamism and innovative performance of an economy by serving as an important conduit for knowledge spillovers. Investments in new knowledge may not automatically be commercialised by the organisation(s) in which that knowledge was originally created [16].

It is obvious that SMEs play the key role in the European economy. On the other hand, Europe chooses knowledge and education. Distance learning and e-learning is one way to achieve the goals easier, with lower costs. This is most important, because very often SMEs do not have enough money to invest in education of employees, unlike LSEs which have special funds for that purpose. The financial crisis creates additional problems in this area. Because of that, it is very important to make research on this subject. A thorough research was done on The Norwegian School of Information Technology [21] within European ELQ-SME project which was supported by the *Leonardo da Vinci Programme from 2005 to 2007.* According to stated advantages of e-learning in the text of this project we can conclude that they research distance learning in contemporary electronic environment, and name it – e-learning. Those characteristics are: (1) Improved flexibility in time and location, (2) Reduced costs for travel, accommodation and seminar rooms, (3) Swifter and cheaper distribution of learning material, (4) Quicker introduction of new products due to accelerated training of many employees, (5) Increased sales because customers perceive e-learning as a sign of high competence and added value to the product, (6) Improved relations with customers and suppliers and (7) Positive organizational effects. Their study was divided into four categories: (1) *The small enterprises* include the following seven cases: A-punkt; Elektro-Biergans, Infocut, Medilabor, Tuca Informática, Librería Álvarez and Kometter-Kasca; (2) *The medium-sized enterprises* comprise these five cases: Balti Investeeringute Grupi Pank – BIG, Associação Nacional de Farmácias, Interpolis, Rabobank and Golff supermarkets; (3) *The large enterprises* consist of three cases: KPMG, York Refrigeration and Roche Diagnostics and (4) The e-learning providers include these three cases: NKI, ETraining OÜ and CINEL.

They found the following major obstacles in using e-learning in small enterprises: deficient information policy regarding e-learning for SMEs, the challenge of overcoming resistance to e-learning among employees, insufficient knowledge of and adaptation to real needs and expectations of trainees, lack of human interaction within the e-learning system as a barrier, absence of contact partners, complicated adjustments to technical possibilities, and unsuitable workplaces for undisturbed learning. For small enterprises it is important that e-learning is flexible with regard to time and location since there are few colleagues to take over the work for those who are absent. To be successful, e-learning must be motivating as well as relevant and useful to the daily work and tasks in the company. Motivation may be improved by use of multimedia, occasional face-to-face meetings, certificates and external financing.

In medium-sized enterprises they found the following barriers: problems with availability of Internet with the correct browser, language barriers, and uncertainty if course content matched the legal requirements, management commitment and acceptance problems among employees aged 35 to 45. As a success factors they stress that e-learning can reach and connect geographically dispersed groups and hence reduce travel time and cost, schedule flexibility makes it possible to reduce cost related to absence from work. They also conclude that e-learning has logistic advantages. It is swifter and easier to distribute digital course material than printed material. This may increase its competitive strength because of accelerated time to market.

As a major conclusion the team suggested the factors for successful e-learning in SMEs: (1) Completion rates[57], (2) Management support, (3) Motivation, (4) Certification[58], (5) Compulsory courses, (6) Content and course design and (7) Blended learning[59].

According to Colin Mc Cullough [20] and his research: "The development of learning in Europe has been dominated by the metaphor of the virtual classroom and the virtual university, it has equally been dominated with an obsession with technology and very little attention has been paid to vocational and occupational learning or the development of e-learning environments in less formal learning contexts. Work is carried out in a social context - this is particularly the case in small and medium-sized enterprises and plays a very important part in people's lives. If e-learning is to make a contribution to changing the traditional learning paradigm - institution based - phase and stage related) it must become embedded in the work organisation." He believes that "people are ready to learn when they realise that they don't know something that they need to know in order to accomplish a goal they wanted to approach. Thus there is little use in a philosophy of one size fits all. To date most e-learning has been an attempt to put books on computers interrupted by a multiple choice test." and suggest transfer from "technological to a pedagogical perspective".

Despite the fact that in the field of distance learning in SMEs sector arise numerous problems and limitations, we believe that the concept of distance learning is very convenient for employees, because of all the benefits it provides. In the future we can expect stronger development efforts in this domain.

Distance learning in SMEs in Serbia

SME sector is becoming more and more important for Serbian economy. The reinforcement of SME sector role in the period 2001-2008 is, at the first place, the result of general business environment improvement and enhancement measures undertaken by all administration levels. Accordingly, the development of the SME sector in Serbia has positive trends, regarding the growing number of these enterprises, the number of employees, the overall turnover, and, finally, the profitability level. In fact, the comparative advantage of SME is its flexibility, its fast adaptation to changes and they are also appropriate for satisfying the fluctuated market demands. Additionally, low fixed costs present important baseline and comparative advantage of these enterprises. Simultaneously, the great number of these firms is characterized by innovativeness, entrepreneurship initiative and creativity, which is of remarkable significance for the accelerating technological development. And last, but not the least, the SME sector is indispensable for the new job vacancies creation (which is of considerate importance for Serbia where unemployment rate has reached approximately 18%) [22].

In 2008 SMEs sector in Serbia has significant contribution to economic growth. It participated in the following:

[57] The courses that the students enrolled in at their own initiative also have a rather high completion rate, and the courses initiated by the management seem on the average to have a lower completion rate. Differences in completion rates relate mainly to differences in motivation levels among participants.

[58] Motivation may be improved by use of multimedia, occasional face-to-face meetings, certificates and external financing.

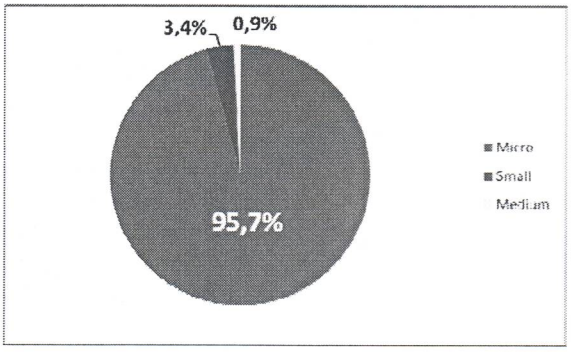
[59] Blended or hybrid learning is right balance between e-learning and face-to-face, or other training activities.

- Total number of enterprises with 99.8% (303,449);
- Total number of employees with 67.2% (940,159);
- Total turnover with 66.6% (RSD 4,662 bill.);
- GDP of Republic of Serbia with 35% (RSD 837.9 bill.);
- GDP of non-financial sector with 59.1% (837,990);
- International trading: export 45.9% (RSD 274,506 mill.) and import 60.5% (RSD 751,817 mill.) and
- Profit with 58.7%.

Presented data suggest that structure of the SMEs and its impact on the national economy does not differ relative to other European countries.

Structure of micro, small and medium enterprises is given at Figure 1. Based on these data it is obvious that micro enterprises dominate.

Between 2004 and 2008 in SMEs sector level of unemployment decreased and number of employees increased by 24.9% (187,419 workers). Number of employees in non-financial sector, similar to the previous years, was driven by increase in SME employment. Number of employees in SME sector in 2008 was 940,159 which are 67.2% of total number of employees (1,398,721). Within total number of employees in SME sector, micro enterprises dominate with half of the employees (444,158).



Reference: Report on micro, small and medium-sized enterprises in 2008, p. 19

Figure 1 Structure of SME sector in Serbia

SWAT analysis of SME sector in Serbia has shown two shortcomings which can be directly connected to distance learning process. These are insufficient use of information technology and obstacles to attract high educated employees.

Research

In order to get deeper insight into awareness of SMEs employees about distance learning possibilities, and in accordance with the need of this monograph, we made small empirical research. We distributed 150 questionnaires to management of micro, small and medium-sized enterprises. Structure of the sample is adjusted to correspond to structure of the Serbian economy (120 micro, 25 small and 5 medium-sized enterprises).

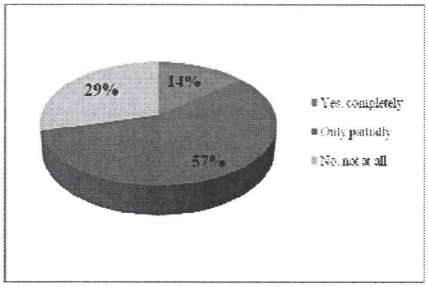
Eventually, we end up with 118 questionnaires fulfilled, with following structure: 107 micro, 9 small and 2 medium-sized enterprises. We target general managers to fulfil the questionnaires and mostly succeeded, because 57% of the examinees are general managers, and 25% are deputies. Other informative characteristics about examinees include level of education (51% secondary level, 38% vocational, 11% high) and age (17% under 30 years, 35% between 30 and 40, 32% between 40 and 50, 15% above 50). We also asked for field of education, but we couldn't identify any particular field which significantly dominates.

Further, we asked how enterprises are equipped with information and communication technology. All enterprises have at least one computer with the following structure concerning number of employees over one computer: 14% one employee, 36% one or two, 41% three or four, 9% more than four. In terms of connectivity to Internet, 73% of enterprises have all computers connected, 22% only partially and just 5% are not connected at all.

Key part of the questionnaire was related to questions about distance learning. We will present overview of the questions with corresponding structure of related answers

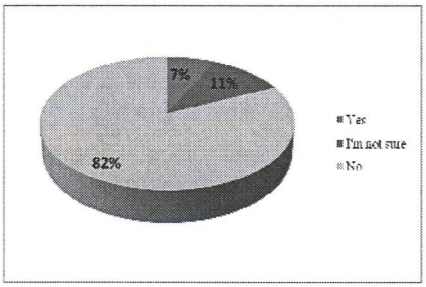
Q1: Are you familiar with concept and application abilities offered by distance learning?

Note: This question is eliminatory and we keep asking only those examinees who are familiar with the distance learning. Further calculations are based on the reduced sample of enterprises.



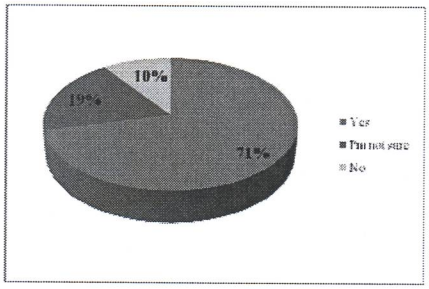
It is obvious that majority (57%) of the examinees in small and mediu-sized enterprises does not have enough information or knowledge about distance learning concept. Some public faculties in Serbia offer distance learning programs as a way of quote extension, because evry year Ministry of Education propose a maximum number of students for each faculty. The real quality of that programs is very poor. Ministry realized that fact and the new standards will be implement in the process of acreditation, focusing olny at distance leraning.

Q2: Do you or someone from your enterprise have any experience with distance learning?



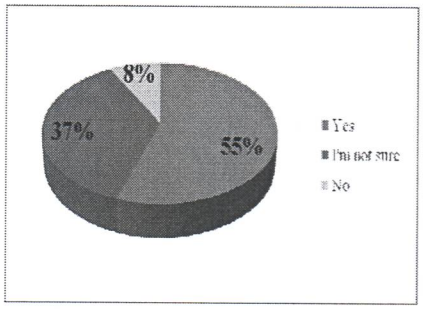
The great majority (82%) does not have any experience with distance learning. We could expect that results, because distance learning has not been well-developed in Serbia.

Q3: Do you think that distance learning is more appropriate for those who are employed if compared with traditional education?



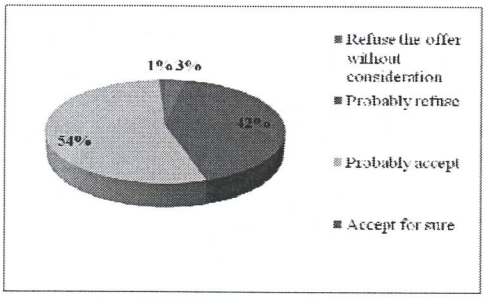
Although they do not have enough knowledge or experience in this field, the examinees (71%) are aware that it would be suitable way for education if compared with traditional.

Q4: Do you think that distance learning is less costly than traditional education?



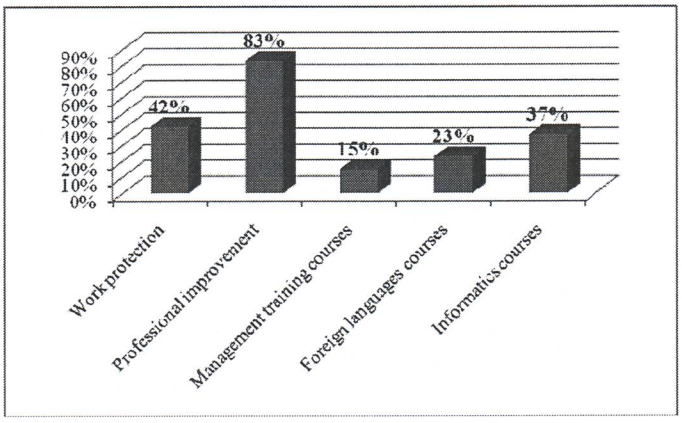
Half of examinees (55%) are also aware of the fact that the selection of distance learning program would be better solution from the standpoint of costs.

Q5: If you receive appropriate offer (in terms of content and price) to improve your knowledge and skills within distance learning program, what would you do?



Answer to this question suggests that half of examinees (55%) are interested in further education. The 54% will probably accept the offer for distance learning and only 1% would refuse it without consideration.

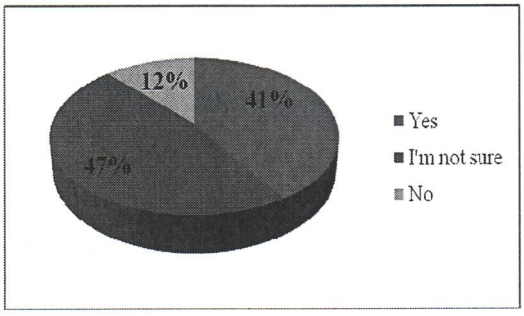
Q6: State what contents are most appropriate for distance learning (multiple answers allowed).



Note: The percentage is calculated on the total of sample

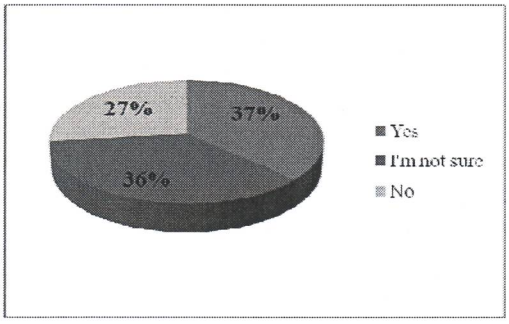
The examinees think that the most appropriate fields for distance learning program are professional improvement (83% off all examinees), work protection (42%) and informatics courses (37%).

Q7: Do you think that educational institutions should increase capabilities for distance learning?



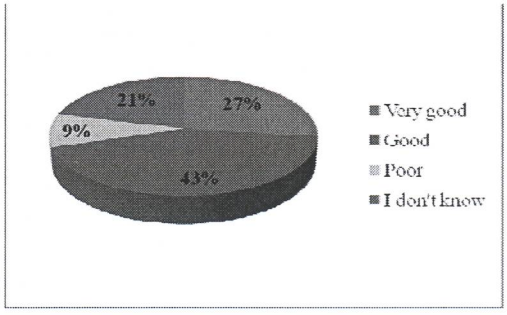
The examinees do not have enough knowledge about distance learning in general or about programs of distance learning is Serbia, as we saw in Q1, so the answer to this question could have been predicted. About half of examinees (47%) are not sure about increasing capabilities in this field, but 41% think that it would be useful.

Q8: Do you think that diplomas or certificates obtained by distance learning are equally valuable as those from traditional education?



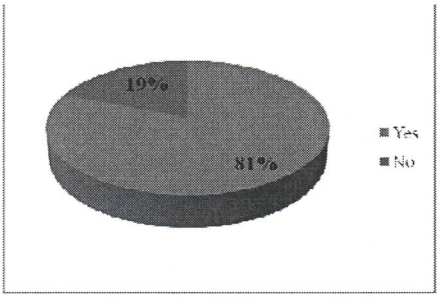
The examinees are equally distributed in opinion about the valuability of traditional and distance learning diplomas. But it is very good that 37% of them think, regarding general situation, that they are equal.

Q9: What are, in your opinion, prospects of distance learning in Serbia?



About half of examinees (48%) think that distance learning has good prospects in Serbia. It is very encouraging and makes a solid base for further development.

Q10: Do you want to receive result of this survey?



The great majority of examines (81%) want the result of this survey.

General conclusion of this survey is that distance learning in Serbia is at low level, but there is a great interest for it among employees in small and medium-sized enterprises. Formal

and informal educational institutions must be aware of that fact, because it is very large market for them. Educational institutions in Serbia must improve process and standards to meet the needs of potential users in the field of distance learning.

Conclusion

Distance learning process has had a long history, but it became very popular in modern era of information and communication technology, so we can observe it as e-learning. Inclusion of computers in this process overcomes many obstacles and shortcomings. One of the major obstacles was physical separation between teacher and learner. Now, when we can use real time audio and video conferences the situation is much more like in a real classroom.

Developed countries have realized the importance of this type of education in the past, so they have developed techniques, methodologies and standards for distance learning. It is very important for the EU because the key drivers in future are knowledge, innovation, education and digital society. The concept may have great application in the sector of small and medium-sized enterprises that are majority of companies in Europe and employ over 80% of the population. The main feature of distance learning – flexibility of time and place for learning is very convenient for employees.

Republic of Serbia is in an initial phase of development and application of the modern concept of distance learning. Ministry of Education through accreditation process according to Bologna process, started to apply standards in this field of education with the aim to provide better quality. We can expect a lot of changes in the future.

CONCLUSION TO THE CHAPTER 7

For centuries teachers and learners are in the process of education, and the way of interaction between them have not changed for a long time. Live words and printed books were always the main methods of knowledge transfer. But in the last few decades of XX century computers changed our lives. Computers and Internet as a global network enable us to communicate in real time, with pictures and sounds. Today we can even organize audio-video conferences and connect lots of participants. All these facts have implications in educational process. Distance learning, as a form of education, supported with informational and communicational technology has become very popular, even in the form of virtual universities.

The development of distance learning has been very fast in the past ten years, especially in the so-called post-socialist countries. Those countries realized the benefits of that form of education, so they started to build they own programs at all educational levels, particularly in higher education. They followed western countries and used their experiences to overcome large obstacles. They realized that standards are very important as a basis for quality and for that reason they started to implement Bologna standards in higher education process. This process has still been active.

The new generations are coming. They are sitting in front of the computers and they do not experience it as a machine, but only as interface to a new world, which belongs to them. They are living their lives and spending their time in the interactive games. They are meeting each other, arguing, working and building characters. For most of us this is just SF story, but our children will probably sit in the virtual classroom one day and follow some virtual professor, without leaving their homes. Maybe we are too old fashion to imagine that kind of education, but we can't stop the future.

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