Socio-IT aspects of e-learning

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PREFACE

The monograph presents issues of contemporary e-learning in its broadest sense. Methods, tools, formal and legal aspects of distance learning as well as socio-ethical conditions have been discussed here.

The issues raised in the monograph is particularly important in the context of changes that have been taking place in recent years. Increasingly, lots of virtual educational institutions as alternatives to traditional learning have emerged. On the other hand, at currently existing universities and schools there are more and more e-learning courses. We are in the time of transition and therefore a new model of education based on generally available online teaching resources is becoming more and more widespread.

The monograph is divided into nine chapters in which the focus is on the issues connected with different aspects of e-learning which collectively point to the multifaceted nature of this form of education.

Chapter I elaborates on the nature, the role and the tasks of modern information and communication technologies. Chapter II contains an analysis of legal and ethical conditions of distance learning through example of Serbia. Chapter III contains the results of a study which main goal was to determine how the students of a particular university (Andrzej Frycz Modrzewski Cracow University, Faculty of Management and Social Communication Sciences and the Faculty of Security Studies) perceive e-learning methods in comparison to traditional teaching methods

The next two chapters (IV–VI) discuss the issues of the benefits of e-learning tools in universities and also problems of legal regulations that are currently applicable in Poland in this regard. Chapter VI is dedicated to the personalization of e-learning as important determinants of the teaching process effectiveness. This chapter also presents Protus System (Programming Tutoring System) to support users of distance learning courses.

Chapter VII analyses the possibilities of using e-learning platform as a tool for carrying semester exams. For this functionality both technological and legal aspects are important. Chapter VIII revises the problems

of standardization of solutions offered for e-learning systems on the market. This problem Is becoming increasingly important due to the emergence of the new internet technologies. The last chapter (IX) analyses the use of remote learning tools for educational purposes carried out by museums in Poland

As this review has just revealed, the scope of issues raised in the monograph include a number of interesting matters and allow the readers to become familiar with the current state of advancement in technologies, tools and methods for e-learning.

Marta Woźniak-Zapór, Tadeusz Grabiński

THE ROLE OF ICT IN BUILDING HUMAN CAPITAL

Biljana Jovanović Gavrilović[1]
Mirjana Gligorić[2]

Abstract

Human capital has always been an important factor of economic development, but in modern conditions it is becoming crucial. The reason for this is the rapid advancement and dissemination of information and communication technologies (ICT), which are changing the very foundations of industrial society. The influence of ICT creates a new civilizational context, which is denoted by the terms "new economy," "knowledge economy," "information society." New technologies contribute to increased demand for highly skilled labor, but at the same time facilitate access to quality education, including in the process and those groups that have traditionally been neglected: the population in rural areas, women, the handicapped. The potential for use of ICT in building human capital depends on many factors, which vary from one country to another, especially between developed and developing countries. This paper discussed the modalities and importance of using ICT in education and training of the labor force in modern conditions.

Key words: knowledge economy, human capital, ICT, e-learning

INTRODUCTION

New information and communication technologies (ICT) have caused revolutionary changes in the global economy, contributing to a rapid globalization process in the areas of commerce and financial capital. Human capital, or rather education as its essence, is also not immune to the effects of modern technologies. The future of a country rests on educated people,

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their knowledge, skills and abilities, whose creation can be significantly influenced by modern technologies. In the times of change, when we look for new sources of economic growth acceleration, the power of ICT should be used for the advancement of learning process both inside and outside the classroom, as well as during our entire lives.

In this paper we will attempt to give a better definition of human capital and to point out its importance in the modern age. We will also give an overview of the availability of ICT in different parts of the world and the width of the digital gap that divides developed and developing countries. A particular attention is paid to exploring the scope of ICT use in the process of education and training, as well as obstacles on that road.

DEFINITION AND IMPORTANCE OF HUMAN CAPITAL IN MODERN CONDITIONS

The theory of human capital has a long history, which goes all the way to Adam Smith. Foundations of the modern theory of human capital were laid in late 1950s and early 1960s in the papers of J. Mincer, T. W. Schultz and G. C. Becker. From the list of new authors who explored this subject, the ones who deserve a mention are W. A. Levis, S. Kuznets and D. North.[3]

Human capital is a wide and multidimensional term, which encompasses different types of investments into people. Any activity which increases the quality (productivity) of human resources can be considered an investment into human capital.[4] Thus, investments into human capital include not only the expenses of formal education and on-the-job training, but also the costs of health insurance, nutrition, migrations, job searching. Work productivity can be increased by enhancing physical or intellectual abilities of workers, but also by moving them from one location and job, with a relatively low work productivity, to another location and job with a relatively high work productivity.

Human capital actually represents the sum of previous investments into education, training, health insurance, nutrition and other factors that increase work productivity. This definition of human capital reflects a broad approach to this term. In a more strict sense (which is the one we usually have in mind), human capital covers only formal education and on-the-job training. More precisely, human capital understood in this way includes knowledge and skills, objectified in people through the process of education

[3] See: B. Balogh, 2013.

[4] C.R. Mc Connel, 2003, p. 84.

and workplace training, which can be used in the production of goods, services and new knowledge.

In comparison with other forms of capital (physical, financial, natural, social), human capital has certain specific and significantly different characteristics. It is characterized by a long forming period, high risk of obsolescence in new and different conditions, inseparability from the person it belongs to and a somewhat difficult transfer from one use to the other.

Human capital has always been an important factor when it comes to growth of national economy and all its segments. In modern conditions, however, it gains crucial importance. The reasons for this lay in the rapid progress and spreading of information and communication technologies, under whose influence the very basis of industrial society changes. A new civilizational context, labelled by terms such as "new economy", "knowledge economy" and "information society", is being created.

Our understanding of modern technological revolution and its effect in the field of economy is still incomplete. However, many agree that the scope of this revolution is global, its effect irreversible (technological clock cannot be turned back) and its influence strong. It carries great potentials for economic advancement, which should be used, but also risks that should be minimized with the help of adequate institutions and policies on the national and international level.

Greater access to information in the times of modern technological revolution will not produce expected effects if people, due to the lack of education, are unable to make use of it. The quality of education is more important now than it has ever been. Investments in elementary and higher education are the most powerful tools in the hands of the state, when it comes to reaping the benefits from ICT. No country can ensure its place on the global ICT market without well-educated workforce. For this reason, significant attention should be paid to the promotion of education and literacy, and especially to digital literacy. In IT economy, lifelong education represents a basic source of job security, or rather, of preserving the skills necessary for employment. The reason behind this is the rapid obsolescence of existing knowledge and the need for quick and continued gaining of new knowledge.

At the Lisbon summit in 2000, European Union set itself an ambitious goal to become the most competitive and most dynamic knowledge based economy by 2010. In order to achieve this, an adequate strategy was established, in which human resources were the priority. Human capital, it was said, represents the decisive factor of economic growth and key lever for increasing social cohesion. In this regard, basic courses of action were defined: promotion of digital literacy, raising the level of education among the population, development of the system of lifelong education tailored to the

needs of the labor market, ensuring the adequate supply of technical and scientific-research staff.[5]

The aforementioned direction of human resource development is also anticipated in the next decade, as can be seen in Europe 2020 strategy, which states the achievement of smart growth, based on knowledge and innovations, as one of its priorities. One of five primary goals, considered as critical for the success of European economies by 2020, is the advancement of education, which, among other things, anticipates the increase of the share of people with a university degree, aged between 30 and 34, from 31% to 40%, which would bring Europe closer to the level that the USA and Japan have.[6]

Investing into people is, without doubt, important for the increase of productivity and overall economic dynamics. Accumulation of human capital also contributes to the strengthening of social cohesion. The precondition for this is that even people on the margin of society, where the level of human capital is traditionally low, are given the opportunity (by removing financial and other constraints) to gain education and thus find employment more easily.

Under the influence of new technologies, the demand for highly qualified workforce is growing. At the same time, information and communication technologies facilitate access to a good quality education and contribute to the advancement of human capital.

POTENTIAL FOR THE USE OF ICT FOR THE ADVANCEMENT OF HUMAN CAPITAL

The potential for the use of ICT for the advancement of human capital, primarily in education and training, is without doubt determined by how available these technologies are. Though ICT is to a great extent universally available, there is still a „digital gap" separating developed from developing countries. Modern world, as J. Sachs points out, is not divided by ideology, but by technology. A small portion of humanity – about 15%, provides almost all global technological innovations.[7] The rest are more or less capable of accepting modern technologies and of applying them in different areas, including for the development of human capital.

Several different indices are used for measuring the degree of ICT development in individual countries, from which we single out composite ICT

[5] *Ibidem*, p. 8.

[6] European Commission, 2010, p. 9.

[7] J. Sachs, *Today's World is Divided not by Ideology but by Technology*, „The Economist" 2000, July, p. 99, according to: D. Campbell, 2001, p. 124.

Development Index (IDI), defined by the International Telecommunication Union (ITU) in 2008. IDI is divided into three sub-indices (access, use and skills), containing a total of 11 indicators presented in Table 1.

Table 1. Indicators and sub-indices included in the IDI

ICT access
Fixed-telephone subscriptions per 100 inhabitants
Mobile-cellular telephone subscriptions per 100 inhabitants
International Internet bandwidth per Internet user
Percentage of households with a computer
Percentage of households with Internet access
ICT use
Percentage of individuals using the Internet
Fixed (wired)-broadband Internet subscriptions per 100 inhabitants
Wireless-broadband subscriptions per 100 inhabitants
ICT skills
Adult literacy rate
Secondary gross enrolment ratio
Tertiary gross enrolment ratio

Source: International Telecommunication Union, 2013, p. 213.

The values of sub-indices are calculated by normalizing the indicators contained in each of them, with an aim to get the same unit of measure, and then calculating the simple average of normalized values of individual indicators. When calculating the final index, whose value (theoretically) ranges from 0 to 10, ICT access and ICT use sub-indices have the same weight (40% each), whereas skills sub-index has a smaller weight (20%), since it is based on proxy indicators (in the absence of data on ICT skills). Still, ICT (and other) skills have a decisive influence on the efficiency of using new technologies and the maximization of their influence on social and economic development. The choice of indicators included in sub-indices reflects the adequate phase of transformation towards information society. Thus, indicators within each sub-index can change over time, in accordance with ICT development.

The results of IDI for 2012 show that there are large differences between countries when it comes to the level of ICT. IDI values range between 0.99 (Niger) and 8.57 (South Korea).[8] Nearly all observed countries (157 in total) have recorded an increase of IDI values compared to the previous year, which indicates that the level of ICT is rising around the world. It is also obvious that Europe, along with Asia-Pacific countries, dominates the top 10

[8] International Telecommunication Union, 2013, p. 24.

list of countries with the highest IDI. Almost two thirds out of 30 countries with the highest IDI are European countries, which is not surprising considering a good regulatory framework it has, along with clearly set priorities and goals in the area of information society development.[9]

Digital divide is very pronounced between developed and developing countries, which is confirmed by the fact that the average value of IDI in 2012 was twice as big in the first as in the second group (6.78 : 3.44). When it comes to individual sub-indices, the smallest difference is noticed in the skills sub-index. Grouping of countries into developed and developing ones with an aim of examining the digital gap also has its shortcomings, because among developing countries there are also champions in ICT, such as South Korea, Hong Kong (China) and Singapore. Although there is a high degree of correlation between the income level and ICT development, there are nonetheless exceptions. Therefore, for the purpose of a more precise examination of the digital gap, countries are classified into four groups that reflect the level of ICT development: high, upper, medium and low. The group of 39 "least connected countries" covers over a third of total world population or, more precisely, 2.4 billion people. The gap between countries with high and low IDI equals 7.30 : 1.64.[10]

Digital divide can deepen the existing economic disparities between rich and poor countries, if the latter remain technologically unconnected. If, however, they manage to connect, ICT can significantly contribute to a speedier economic growth and development. Responsibility for a wider use of ICT in the developing countries lays with each one of them individually, but also with the international community, which should provide these countries with expert and financial help. Certain international initiatives have already been launched in order to bridge the digital divide and modern technologies to be put to use for the purpose of economic growth of less developed countries. Out of many new initiatives, we point out to the 50x15 initiative, whose goal is to speed up digital inclusion so that 50% of the world's population has access to Internet by 2015.[11] According to ITU estimates, by the end of 2014 the percentage of Internet users will rise to 40% globally (78% in the developed countries and 32% in the developing ones).[12] However, four billion people (90% of which live in the developing countries) will still not have

[9] In 2010, the European Union adopted Digital Agenda for Europe, which represents the first of seven leading initiatives from Europe 2020 strategy. This agenda was updated in December 2012 and it contains a set of specific goals which should be realized by the end of this decade. See: https://ec.europa.eu/digital–agenda/en/digital–agenda–europe.

[10] International Telecommunication Union, 2013, p. 41.

[11] See: http://www.50x15.org/.

[12] ITU, 2014.

Internet access, which is a large handicap in the modern world. Technology is powerful only if it is available.

CONTRIBUTION OF ICT TO THE DEVELOPMENT OF HUMAN CAPITAL THROUGH THE PROCESS OF EDUCATION AND TRAINING

Emergence of knowledge based economy and strengthening of global economic competition forces governments all round the world to set as a priority the improvement of education, lifelong learning and giving opportunities for learning to all those who want it. ICT use in education can help individuals to compete in global economy, providing them with adequate knowledge and competence and facilitating their social mobility.

The history of using technological achievements in the process of transfer and acquisition of knowledge is quite long and rich and, among other things, it includes the use of such means as radio, film, television and computers, with an aim to improve classical education methods in the classroom. The emergence of Internet, computer-based multimedia and the World Wide Web causes significant changes in the field of learning, particularly in post-secondary education and training. These technologies can be integrated into the teaching process in the classroom in the same way as the ones before, but they can also support distance education on the national and international level. "Pure" face-to-face teaching and "pure" distance education are two opposites, connected in the middle by distributed learning (flexible learning), which is a mix of reduced face-to-face teaching and on-line teaching.[13] All these different types of learning, which are based on "electronic" technology, are called e-learning (ICT-enabled learning).

The use of ICT for educational purposes has multiple positive effects, both on the social plan and in the very process of education. When it comes to the social plan, ICT supports the economic growth through the growth of human capital and the increase in workforce productivity, it promotes social development through knowledge sharing, encouraging creativity and the increase of democratic participation.[14] As regards to education, ICT contributes to the introduction of more advanced learning methods, supports personalized methods of teaching and acquiring curriculum contents, ensures or increases digital skills which students need for learning, work and life in the modern world, provides possibilities for education to those who

[13] T. Bates, 2001, pp. 19–22.

[14] See: R.B. Kozma, 2008.

did not have them before (primarily to people in rural and remote areas), erases boundaries and provides access to educational institutions all round the world and to courses held by top professors and experts from abroad, minimizes the costs of knowledge transfer, improves administration in the field of education in order to increase the quality and efficiency of service providing.

ICT use is significant at all levels of education. However, there are differences in the way these technologies are used. In schools, ICT is primarily used for administrative and management work, for acquiring ICT skills or as a teaching tool for learning the curriculum material from other school subjects. At this level of education, distance learning is rarely present.

When it comes to higher education, ICT is more often used for learning at a distance. The reasons for this are primarily the students' wishes, as well as the effort of the state to cut costs. Time and location are the additional reasons. Students in developed countries often work and study at the same time, whereas those in less developed countries cannot afford traditional university education for various reasons, one of them being that they live far away from university centers. The technology of distance education has made significant advances in recent times and became very sophisticated. While many universities in the developing countries use simple technology such as satellite television, others rely on more complex means of communication, including on-line discussion, i.e. a certain degree of interaction with students. However, despite its advantages (particularly when combined with face-to-face instructions), distance learning is still treated as inferior to the traditional university education provided in an institution.

Distance university education is faced with numerous challenges and unexpected problems – starting from the financial ones (high initial costs and insufficient income) to the difficulties with devising adequate programs and the additional time that distance knowledge transfer and acquisition requires. At universities, as well as in schools, ICT is used for more efficient administrative and management work. In the area of higher education, ICT is also of great importance in doing scientific research.

An important aspect of ICT use for the purpose of building human capital has to do with corporate training. This training partly refers to gaining computer skills, and partly to the advancement of knowledge of employees in their specific areas of expertise. ICT use in the process of training, particularly in large corporations, has gained in importance in the last ten years. Many companies are aware of the fact that their profitability depends on the quality of human resources and for that reason they are interested in workforce training. At the same time, they seek to reduce the time the employees spend in training programs, in order to devote as much time as possible to

their work. Consequently, special attention is paid to the efficiency of training.

Since ICT is increasingly being used in education, there is a need for indicators which would precisely express the efficiency of new technologies and their educational results. The government and policymakers should not be interested only in introducing ICT in the education field, but also in its efficient implementation. Research conducted so far unequivocally confirms that the use of ICT in educational institutions improves computer skills of students, but the results on the relation between ICT use and educational performances are rather ambiguous, even contradictory.[15] This can largely be explained by the conceptual and methodological problems linked with this type of analysis, as well as by the lack of valid and comparable data for different countries.[16]

It is important to note that the influence of ICT in education is mostly perceived through traditional indicators of results that students show in mastering certain subjects. However, modern ICT can have other positive effects, too, such as creativity, ability to solve problems, motivation for studying, positive attitude towards technology, etc, which are very rarely taken into account while conducting empirical research.[17]

Although there is still no agreement over how much ICT really contributes to the advancement of human capital, it is undeniable that these technologies become an increasingly integral part of modern education system. As an illustration of this, we present some data on ICT use in schools in the European Union, which were recently published by the European Commission.[18] It turned out that there are between three and seven students to one computer. The higher the level of education, the more favorable this ratio is, in the majority of observed countries. However, it is obvious that there are significant variations in the level of the observed indicator within EU. Laptops, tablets and netbooks are becoming pervasive, but only in some countries. On average, there are between eight and 20 students to one laptop in the EU, depending on the level of education. Most schools are "connected",

[15] A detailed review of conducted research can be found in: R.B. Kozma, 2011, pp. 15–16. Also see: F. Scheuermann, F. Pedrópp, 2009, pp. 67–82.

[16] A systematic overview of difficulties arising in assessing ICT influence on learning can be found in: F. Biagi, M. Loi, 2013.

[17] See, for example: J. Kulik, 2003, *The Effects of Using Instructional Technology in Elementary and Secondary Schools: What Controlled Evaluation Studies Say?,* Menlo Park, CA, SRI International; J. Kiboss, Teacher/pupil perspectives on computer-augmented physics lessons on measurement in Kenyan secondary schools, „Journal of Information Technology for Teacher Education" 2000, Vol. 9, No. 2, pp. 199–218.

[18] See: European Commission, *Survey of Schools: ICT in Education,* Brussels: European Schoolnet 2013.

at least on a basic level, which means that they have a website, email, a local area network or a virtual learning environment.[19] More than nine out of ten pupils are in schools with broadband, at most commonly between 2 and 30 mbps on average in the EU.[20]

When it comes to the higher education in Europe, we should mention that only a handful of universities use massive online open courses (MOOC) and in this field Europe lags significantly behind the USA (in the US, three main MOOC providers offer around 400 courses, with 3 million users worldwide). More attention will be paid to this problem in the EU in the near future.[21]

The key problem in European countries, as research has shown, is not foremost the availability of ICT, but its real integration in the process of teaching and learning. The combination of innovative pedagogy and the effective use of digital means and contents could, by all accounts, contribute to the improvement of quality, equity and efficiency in the field of education.

Finally, it should be noted that, according to the latest data on internal training in companies in Europe, the average level of activities in this area is falling in many countries, primarily the economically developed ones, despite policies that should prevent that. In contrast to this, some of the less developed economies are showing signs of «catching up». Although the goals of the Lisbon Strategy concerning lifelong learning have not yet been realized, the EU set even more ambitious goals that should be achieved by 2020 (specifically, 15% of adults aged 25 to 64 should participate in adult learning on average across the EU – the target was 12.5% for 2010 but it was not met).[22] The promotion of training with the use of ICT, especially in small and medium-sized enterprises, and the fostering of financial participation of individuals and companies in the costs of continuing vocational training become particularly important in that context.

CONCLUSION

ICT can, without doubt, be useful in the process of building human capital, as a key determinant of development in modern conditions. Its effects are conditioned by a whole range of factors – from the quality of technological infrastructure to the level of training and motivation of a teacher and the use

[19] *Ibidem*, p. 33.

[20] *Ibidem*, p. 9.

[21] European Commission, „Education and Training Monitor" 2013, Brussels, p. 19.

[22] J. Markowitsch *et al*., 2013, p. 281.

of adequate pedagogic methods (including personalized and collaborative learning).

Thanks to ICT, the possibilities for education and training are given to a wider circle of people: seniors, employed, physically disabled people, those who live further away from education centers, etc. In remote rural areas, e-learning is often the only way to gain education, which makes this form of learning particularly significant.

In order for the gain of knowledge through ICT to be profitable, it is necessary that a larger number of people get involved in the process of education and training, which is often a problem in developing countries. Using these technologies simultaneously for research and administrative work can also be a challenge. The costs of ICT use in education and training are substantial and, apart from initial investments, they also include occasional replacement of hardware and software.

Besides purely economic aspects of ICT use in the building of human capital, its other dimensions should not be neglected either. Technology is not neutral, as noted by the experts of UNESCO.[23] It affects the ways of acquiring knowledge, building new relations between schools and communities and reducing the gap between formal and informal education. Apart from that, technology can make policymakers reassess the skills and abilities required for living and working in this modern society of knowledge.

The breakthrough of ICT into education opens up new possibilities, but also new dilemmas. The forming of human capital is a delicate process during which transmission of values is taking place, national identity is being built and national consciousness and the sense of solidarity being bolstered. In this respect, a question arises whether the contents of school and university curriculums should be left to foreigners, non-governmental organizations and private companies.[24] A responsible state should, without doubt, think about this dimension, monitor and assess the effects that e-learning has on the national culture and identity and to accordingly define adequate strategies and policies.

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ETHICAL AND LEGAL ASPECTS OF DISTANCE LEARNING

Danijela Glušac[1]

Abstract

Development of computers and Internet have influenced almost every aspect of human society. Education, being one of the milestones of the society is not an excpetion. Distance learning is a form of learning, supported by use of new media by the Internet, in which the student and professor are geographically distant to each other. In the past, the influence of e–learning in the area of education market becomes dramatically intense. The paper deals with essential characteristics of distance learning as well as the legal possibilities of the higher education institutions in Serbia in including distance learning. There are several key questions regarding the legal aspects of distance learning that one should be aware of which this paper presents. In last chapter are given ethical aspects of distance learning, in particular this paper discusses strategies for minimizing academic dishonesty in distance learning and teaching.
Key words: distance learning, higher education, study programs, legal, ethics

INTRODUCTION

Traditional educational systems, although characterized by inertness, have been rapidly changing during the end of the twentieth century, due to the general changes in all areas of human activity and with the amassing of new knowledge. The introduction of information and communication technologies into education leads to new and interesting ways of transferring educational materials to students. A virtual classroom does not exclude the traditional one, they complement each other. Students and their teachers do not leave their classrooms, but receive knowledge from a virtual space in a more interesting and complete way, a way which is not accessible in the process of traditional education.

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Education which is aided by information technologies entails at least three basic components:

1. ComputerAssisted Learning – CAL;
2. ComputerAssistedResearch;
3. Distance Learning – DL.[2]

1. Computer assisted learning is mostly used, and is very good for achieving an interaction between students and a computer, in order to improve their existing learning technology, and to make learning more obvious, dynamic and interesting, all the while engaging the student's senses in acquiring new knowledge. Computer assisted learning includes multimedia educational software, computer simulations, virtual reality, artificial intelligence, etc. The use of information technologies foresees individual knowledge acquirement, continual feedback and monitoring the progress of students, which helps the teacher evaluate the knowledge of the students in a more realistic way, and show them other didactic media which would help them acquire new knowledge more successfully. Computer assisted learning has been used in education for quite a long time, but in the past five years, computer technologies have significantly improved, and educational software has been perfected from simple DOS applications into three-dimensional virtual realities which raise the internal motivation of students and are becoming very interesting.[3]

2. Computer assisted research is today significantly used at institutions of higher education for the theoretical research of sources in different fields and for empirical research with the aid of adequate statistical software (STAT VIEW, SPSS, etc.). The theoretical research of references is almost unimaginable without the use of computer technologies, because today almost all significant books, papers, studies and journals from expert and scientific conferences are translated into electronic forms and placed on the WEB portals of publishing houses, faculties, libraries, schools, etc. This trend of reaching all important information by the use of a search engine on the global computer network will continue in the next decade, when it is expected that institutions for publishing textbooks and other publishers will offer their books in an electronic form.[4]

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[2] D. Mandić, *Obrazovanje na daljinu*, Učiteljski fakultet u Beogradu, Beograd, 2003, p. 1–2, preuzeto sa www.edu–soft.rs.

[3] *Ibidem.*

[4] *Ibidem.*

3. Distance learning, with the use of computers, telecommunication devices, cable television, is being applied ever more in education. Many universities across the world have, wishing to level the level of knowledge they give to students, introduced the practice of exchanging ideas by the use of telecommunication technologies, instead of professors traveling to other faculties, which was the practice until now. Namely, professors hold lectures at their home universities, which are transmitted via the Internet to other locations. This has fulfilled the long-term goal of education leaders, that ideas should travel instead of people, which significantly reduces the material expenses of the faculty itself. Distance learning is an instructional way of working with students, which does not require the presence of student and teacher in the same room. [5] Distance learning is not a new phenomenon. With the development of the postal service in the 19th century, commercial correspondence colleges provided distance education to students across the country. This trend continued well into the 20th century with the advent of radio, television, and other media that allowed for learning at a distance. In the last decade, distance education has changed significantly with the use of computer-mediated learning, two-way interactive video, and a variety of other technologies. Colleges and universities are forging ahead to provide learning at a distance, and many institutions are making substantial investments in new technologies for teaching.[6] As one of distant learning forms, e-learning has been created to meet the needs of those who, because of some factors such as work or social conditions, are unable to take part in traditional forms of education.[7] Distance learning is a form of education where students acquire knowledge without direct contact with the teacher, at a time and place of their leisure. The United States Distance Learning Association defines distance learning as „the acquisition of knowledge and skills through mediated information and instruction, encompassing different technologies and other forms of distance learning".[8] Given the numerous definitions of what appears to be essentially the same construct, what are the necessary and sufficient elements of distance learning? On a practical level, for an activity to be considered distance learning it should include—at minimum—the following:

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[5] *Ibidem.*

[6] R. Phipps, J. Merisotis, *What's the Difference? A Review of Contemporary Research on the Effectiveness of Distance Learning in Higher Education. A Review of Contemporary Research on the Effectiveness of Distance Learning in Higher Education*, The Institute for Higher Education Policy, Washington DC, 1999, p. 8. retrieved from http://eric.ed.gov/?id=ED429524

[7] M. Woźniak-Zapór, *E-learning in business*," Školabiznisa" 2013, No. 3–4, p. 101.

[8] *United States Distance Learning Association*, retrieved from http://www.usdla.org.

- Physical distance between the student and the teacher – the most obvious element,
- An organization that provides the content – in contrast to purely self-directed learning,
- A curriculum – learning must have an objective and therefore must have structure,
- Measurement of learning – without which no learning can be observed to have taken place.[9]

With the expansion of technologies and innovations in the field of distance learning, the accessibility of this form of education has greatly increased. This again introduces the question of the quality of this way of learning, ranging from the competencies of the teachers who prepare teaching materials for this type of teaching, the choice of adequate learning tools, the choice of activities, monitoring the work of students on a portal as well as the abilities of students to implement all learning outcomes without the physical presence of a tutor.[10]Some of the issues faced by an institution whose main activity is education within the digital era are the legal regulations of distance learning as well as ethical dilemmas.

DISTANCE LEARNING IN HIGHER EDUCATION

The demands of modern society for global knowledge, uniform standards, timely information and possibilities of connecting the acquired information and experience at a universal level indicate deficiencies in the traditional educational technology and a clear need for new technologies and learning innovations in higher education.[11] Distance learning in higher education is first and foremost about providing quality educational experience. Distance has become but a relatively minor structural constraint in providing a quality, highly interactive learning experience.[12] Distance learn-

[9] T.J. Holden, J-P.P. Westfall, *An Instructional Media Selection Guide for Distance Learning*, United States Distance Learning Association, 2006, p. 3, retrieved from http://www.google.rs/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0CBoQFjAA&url=http%3A%2F%2Fwww.usdla.org%2Fv%2Fassets%2Fpdf_files%2FAIMSGDL%25202nd%2520Ed._styled_010311.pdf&ei=1a7VU8uXJOel0QWL–oDwDw&usg=AFQjCNFmdudOtfXkjxJeAUoT1bzNLur2uw&bvm=bv.71778758,d.bGQ.

[10] S. Jovanović, M. Drakulić, *Primena prava intelektualne svojine u elektronskom učenju*," Digitalizacija kulturne baštine univerzitetski repozitorijumi i učenje na daljinu – Učenje na daljinu i interaktivna nastava" 2012, Filološki fakultet Univerzitet u Beogradu, p. 93.

[11] V. Nikolić, J. Taradi, *E-learning in higher education: case study*," The Second International Cconference on e-Learning (eLearning–2011)", 29–30 September 2011, p. 18.

[12] D. Randy Garrison, *E-Learning in the 21st Century: A Framework for Research and Practice*, Taylor & Francis, 2011, p. 2.

ing can be executed at all levels of education, and is mostly present within higher education.[13] It can exist as a complement to traditional education (so called hybrid education), or independently. The advantages of hybrid education are that the best characteristics of both forms of education can be used. However, it is mostly used as a transitional model in a full transition to distance learning.[14] Distance learning is becoming more available at higher education institutions in Serbia and neighboring countries, and the option has also been created for faculties themselves to participate in the „markets" of other countries. This involves possibilities that differ from institution to institution. It can often be seen that practical examples do not coincide with theoretical solutions. We can learn from numerous examples from across the world as well as domestic ones, but every educational process is strongly rooted in context, so the solutions that suit others can often not be literally transferred. [15] Distance learning enables students to have an easier education at faculties both in other countries in the region, and those around the world. The question that arises is what is being offered at institutions of higher education in the Balkans under the name of distance learning.[16] What is offered is mostly the option to access learning materials in the form of text or multimedia documents, and sometimes online transmissions or download of video-recordings of otherwise traditional lectures. Most often consultations with professors and assistants are made possible via electronic mail, and sometimes with the use of online communication programs via the Internet, such as Skype or Windows Live Messenger.[17] The dynamic of the realization of teaching subjects is „the same for distance learning students as is for those who study in the traditional way, while online students have to go over the materials at an individual pace and do not have to attend lectures. Exams are mostly the same as the exams of students who attend the traditional form of education".[18]

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[13] Some experts claim that distance learning will in the future completely replace traditional forms of education, because it is cheaper and more available. The estimated of the Organization for Economic Co–operation and Development (OECD) is that by 2025 between 30 and 80 million students will study online.

[14] D. Ćamilović, *Visokoškolskoobrazovanje na daljinu*," Tranzicija: časopis za ekonomiju i politikutranzicije" 2013, No. 31, p. 3.

[15] P. Jandić, D. Boras, *Kritičko e-obrazovanje,* „Pedagoškaraskršća" 2013, p. 11.

[16] N. Ostojić, *Studiranje na daljinu danas na području bivših jugoslovenskih republika-iskustva instruktora*", „Digitalizacija kulturne baštine univerzitetski repozitorijumi i učenje na daljinu–Učenje na daljinu i interaktivna nastava" 2012, Filološki fakultet Univerzitet u Beogradu, p. 142.

[17] *Ibidem.*

[18] *Ibidem.*

LEGAL ASPECTS OF DISTANCE LEARNING

There are several key questions regarding the legal aspects of e-education that one should be aware of. The most complex legal questions in the field of e-education are those regarding: copyright, the issues of intellectual property, data protection, licensing[19] and regulations within the Law on Higher Education, in other words setting a standard for the accreditation of study programs for distance learning. The key aspects of regulating the final issues will be discussed, which is of importance for the adequate regulation in the field of education. It has been 11 years since September 2003, when Serbia signed the Bologna Declaration on Higher Education, and more than seven years from the start of the accreditation process of institutions of higher education and their study programs and eight years since the publication of a book regarding accreditation in higher education.

After the signing of the Bologna Declaration, by the adoption of the Law on Higher Education, the three subjects who are most responsible for the implementation of the Law were determined: the National Council for Higher Education, the Commission for Accreditation and Quality Assurance and the Ministry of Education, Science and Technological Development. Considering that the Bologna Declaration which is being enforced entails the regular attendance of lectures and classes, and students need to fulfill numerous prerequisites during the academic year, this presents a problem for those students who cannot attend classes at graduate schools and faculties regularly, for any reason. This mostly refers to those who work and study at the same time, as they cannot leave work to go to class. Considering the small percentage of citizens with higher education, they are the ones who need to be motivated to achieve the sixth and seventh levels of education.

Institutions of higher education, based on the Law on Higher Education ("Official Gazette of the Republic of Serbia", no. 76/2005, 100/2007 – authentic interpretation, 97/2008, 44/2010, 93/2012 and 89/2013), can organize distance learning based on an acquired license[20] which defines the maximum number of students. Lecture organization is not needed[21], and the ways of

[19] Linkgroup, *E-learning*, Linkgroup, Beograd 2012, p. 179.

[20] Article 33, Paragraph 5 of the Law on Higher Education of the Republic of Serbia: An institution of higher education may implement a study program in the form of distance learning, in accordance with its license.
Article 41, Paragraph 14: The license lists the following: study programs, number of students, number of teachers, facilities where activities are implemented, if a study program is implemented as a form of distance learning and the maximum number of students which can study in that manner, as well as if an institution of higher education can perform activities outside its seat.

[21] Article 81, Paragraph 2 of the Law on Higher Education.

implementing DLS programs is regulated by general acts[22] of the institutions of higher education themselves. What is important to note, is that exams may be taken at the seat of the higher education institution and in other facilities listed within the license[23] (one of the leading faculties in Serbia in the field of technical and technological sciences has in a media campaign stated that their students have successfully graduated by taking exams from another country, knowingly or unknowingly braking the last mentioned article of the Law on Higher Education). This poses a great problem for students who live far from the seat of the faculty, mostly for students who live abroad, which gives rise to the opinion that online exams should be allowed, under camera supervision, or the possibility of opening centers where testing would be carried out.

Statistical data shows that the number of individuals with a higher education is significantly lower in Serbia than in advocated by the European Union (EU). According to the data from the previous census in 2011, the percentage of the population aged 15 and higher with a high and higher level of education in Serbia was 16.24%, of which 10.59% have a higher level of education.[24] On the other hand, all EU countries strive to achieve a level of 40% of individuals with a higher education until 2020, which means Serbia cannot allow itself to remain behind in this amount, if it wishes to become a part of the EU. The Strategy for the Development of Education in Serbia until 2020[25] has been created to, as it states, respect European tendencies, summarized in the „Europe 2020" document. It foresees the support to a larger amount of use of methodologies and technologies of e-learning as a support to traditional learning as a measure, through the development of study programs which are held in parallel (in a traditional way and in the form of distance learning) and study programs which are only implemented in the form of distance learning, where the quality standards of distance learning need to be in accordance with practices around the world and in the EU. The significance of distance programs and electronic learning programs has also been recognized with adult education, as well as the possibility of using resources and distance learning in the aim of providing

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[22] Article 81, Paragraph 3 of the Law on Higher Education.

[23] Article 90, *op. cit*.

[24] *Census of population, households and dwellings in the Republic of Serbia in 2011: Educational Attainment, Literacy and Computer Literacy,* Statistical Office of the Republic of Serbia, retrieved from http://webrzs.stat.gov.rs/WebSite/Public/PublicationView.aspx?pKey=41&pLevel=1&pubType=2&pubKey=1565.

[25] *The Strategy of the Development of Education in Serbia until 2020*, The Ministry of Education and Science, retrieved from www.srbija.gov.rs/extfile/sr/179119/strategija_obrazovanje026_cyr.zip.

accessible education for persons with developmental disorders.[26] The issue of employed students has also been considered. It has been noted that distance learning which is most appropriate for them has been limited by a decision of the National Council for Higher Education which determined that the number of students participating in distance learning cannot be over 30% of the total number of students.[27] According to the data of the Commission for Accreditation and Quality Assurance, ending with July 11, 2014, a total of 11 faculties and 7 graduate schools of professional studies have accredited study programs adapted to the concept of distance learning in Serbia.[28] There are currently 15 accredited study programs at faculties for conducting the teaching programs of distance learning, and 7 of these study programs at graduate schools of professional studies.[29]

Quality is a significant concept that has strong reflections and impacts in every field of our lives. The quality of higher education has also significant effects on a society's economical status and prosperity.[30] This is why institutions of higher education go through the process of accreditation which determines if the institution of higher education fulfills the standards for performing activities regarding studies (undergraduate, vocational, specialist, academic and masters, doctoral) i.e. if the study programs are in accordance with standards. The Council for Higher Education Accreditation (CHEA), underlines 3 major challenges for accreditation in distance learning[31]: alternative design of instruction, alternative providers of higher education, and expanded focus on training. Accreditation has responded to these challenges by making significant changes in accreditation standards, policies, and pro-

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[26] D. Ćamilović, *op. cit.*, p. 8.

[27] *Ibidem.*

[28] The first generation of about 100 students, who dared to study in this manner, even before the first cycle of accreditation in 2007, has been enrolled in the 2003/2004 academic year at the Belgrade Faculty of Economics. It has proven a success, and each following year another 300 students have been enrolled.

[29] *A Guide for Students through Accredited Study Programs in the Institutions of Higher Education in Serbia,* 2014, retrieved from http://www.kapk.org/index.php?option=com_content&task=view&id=42&Itemid=52.

[30] S. Nihan Çabukanaper, D. MelikeTaner Uluçay, A. Çabuk, *Accreditation of online and distance learning programs: online gis education program experience,* „Turkish Online Journal of Distance Education" 2013, No. 1, p. 232, retrieved from http://eric.ed.gov/?id=EJ1006262.

[31] Accreditation for distance education is necessary for „evaluating educational quality, assuring institutional accountability, achieving and maintaining high standards, [and] making education more responsive to students' and society's needs", K.E. Young, C.M. Chambers, H.R. Kells & Associates, *Understanding accreditation: contemporary perspectives on issues and practices in evaluating educational quality*, Jossey-Bass, San Francisco 1983, p.1 1, cited in N. Lindsey, *Deciphering Distance Learning Accreditation: A Balance of Obstacles and Opportunities*, Submitted to Eric, 2006, p. 17, retrieved from http://eric.ed.gov/?id=ED493909.

cedures. These changes address the seven distinct areas of institutional activity that are of greatest significance to assuring quality in a distance learning environment: institutional mission, institutional organization, institutional resources, curriculum and instruction, faculty support, student support, and student learning outcomes.[32]

The Serbian National Council for Higher Education produces a Statute of Standards and Procedures for Accreditation of Faculties and Faculty Curricula.[33]According to the standard, such programs should be based on methods and technologies of distance education, supported by resources that enable qualitative execution of this study program. The Statute includes a set of standards for distance education offerings. Faculties can organize distance and study programs for each area, and for each educational-scientific and educational-artistic field[34], if educational content, supported by available resources, can be qualitatively adopted through distance studies, and if it secures the same level of knowledge of graduated students, same study efficiency and the same diploma degree, as in case of usual methods of study program realization.[35]

The content of classes within the study program should be conceived in a modern way, and adapted to distance learning, with a marked time needed for consultation.[36] The teaching materials should fully correspond in terms of quality, content and scope to educational goals and the curriculum, and should be tailored to successful individual mastering of needed knowledge.[37] The instructions for learning provided by the institution of

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[32] S. Nihan Çabukanaper, D. Melike Taner Uluçay, A. Çabuk, *op. cit*., p. 236.

[33] The Commission for Accreditation and Quality Assurance has, based on the European Framework of Qualifications and the experiences of a large number of European countries, first of all their accreditation commissions, created the basic standards for higher education, respecting the educational tradition in Serbia, which was adopted by the Serbian National Council for Higher Education.

[34] In Serbia, there are currently 7 accredited study programs at different faculties in the field of technical and technological studies and 8 study programs in the field of humanities, and at graduate schools of professional studies there are 5 study programs in the field of technical and technological studies and 2 study programs in the field ofhumanities. Source: *A Guide for Students through Accredited Study Programs in the Institutions of Higher Education in Serbia,* 2014, retrieved from http://www.kapk.org/index.php?option=com_content&task=view&id=42&Itemid=52.

[35] Standard 12 of the Accreditation Standards for Study Programs of the First and Second Level of Higher Education, *Accreditation and Quality Assurance in Higher Education,* Belgrade, 2013, retrieved from http://www.kapk.org/index.php?option=com_content&task=view&id=19&Itemid=31&lang=sr.

[36] **S**tandard 12.1 of Standards and Procedures for Accreditation of Faculties and Faculty Curricula of the First and Second Level of Higher Education, *Accreditation and Quality Assurance in Higher Education*, Belgrade, 2013, retrieved from http://www.kapk.org/index.php?option=com_content&task=view&id=19&Itemid=31&lang=sr.

[37] Standard 12.2 of Standards and Procedures for Accreditation of Faculties and Faculty

higher education should contain concrete suggestions regarding the learning strategy of students and independent knowledge testing.[38] A subsystem for knowledge assessment of students should be integrated into the system for managing the process of distance learning and support different forms of learning and knowledge assessment (consultations, self-testing, pre-exam testing, reports, exams).[39] The exam is taken at the seat of the institution of higher education, i.e. at facilities listed in the license of the institution of higher education.[40] The institution of higher education should have a qualified and competent teaching staff for implementing the study program within distance learning.[41] Teachers are responsible for writing teaching materials, tests for pre-exam testing and for the final exam, as well as coordinating all activities for acquiring the necessary knowledge.[42] One teacher can at most cover three subjects per semester.[43] Consultations with students are held by teachers or associates.[44] One teacher or associate can hold consultation with a maximum of 80 students per semester.[45] The re-

Curricula of the First and Second Level of Higher Education, *Accreditation and Quality Assurance in Higher Education*, Belgrade, 2013, retrieved from http://www.kapk.org/index.php?option=com_content&task=view&id=19&Itemid=31&lang=sr It is recommended that this standard should be changed so that it is demanded that a complete teaching material is (at least for the first year of the study program) prepared in advance in an electronic form and available online.

[38] **S**tandard 12.3 of Standards and Procedures for Accreditation of Faculties and Faculty Curricula of the First and Second Level of Higher Education, *Accreditation and Quality Assurance in Higher Education*, Belgrade, 2013, retrieved from http://www.kapk.org/index.php?option=com_content&task=view&id=19&Itemid=31&lang=sr.

[39] **S**tandard 12.4 of Standards and Procedures for Accreditation of Faculties and Faculty Curricula of the First and Second Level of Higher Education, Accreditation and Quality Assurance in Higher Education, Belgrade, 2013, retrieved from http://www.kapk.org/index.php?option=com_content&task=view&id=19&Itemid=31&lang=sr.

[40] **S**tandard 12.5 of Standards and Procedures for Accreditation of Faculties and Faculty Curricula of the First and Second Level of Higher Education, *Accreditation and Quality Assurance in Higher Education*, Belgrade, 2013, retrieved from http://www.kapk.org/index.php?option=com_content&task=view&id=19&Itemid=31&lang=sr.

[41] There is an opinion that standards need to regulate the existence of e–tutors.

[42] **S**tandard 12.6 of Standards and Procedures for Accreditation of Faculties and Faculty Curricula of the First and Second Level of Higher Education, *Accreditation and Quality Assurance in Higher Education*, Belgrade, 2013, retrieved from http://www.kapk.org/index.php?option=com_content&task=view&id=19&Itemid=31&lang=sr.

[43] **S**tandard 12.7 of Standards and Procedures for Accreditation of Faculties and Faculty Curricula of the First and Second Level of Higher Education, *Accreditation and Quality Assurance in Higher Education*, Belgrade, 2013, retrieved from http://www.kapk.org/index.php?option=com_content&task=view&id=19&Itemid=31&lang=sr.

[44] *Ibidem.*

[45] Instructions for the preparation of documents for the accreditation of distance study programs, Accreditation and Quality Assurance in Higher Education, Belgrade 2013,retrieved

quired number of teachers and associates employed full-time is 70% of the minimum number of teachers and associates needed for the execution of the study program.[46] When the same study program is at the same time realized in the traditional way and within distance learning, the total number of necessary teachers and associates is determined as within the traditional form of program implementation, while one teacher can hold consultations with a maximum of 80 students from both study groups, on average per semester.[47] A higher education institution need to provide the equipment and communication-information technologies for the establishment and maintenance of two-way communication between teacher and student, in order to implement educational activities at a distance (teaching sections, consultations, self-testing, pre-exam testing, projects, seminar papers etc.). Within the system for managing the process of distance learning, the institution of higher education needs to provide the following:

- its own or a rented integrated computer platform (DLS – Distance Learning System) with a specialized software for the housing and

from http://www.kapk.org/index.php?option=com_content&task=view&id=19&Itemid=31&lang=sr.

[46] **S**tandard 12.8 of Standards and Procedures for Accreditation of Faculties and Faculty Curricula of the First and Second Level of Higher Education, *Accreditation and Quality Assurance in Higher Education*, Belgrade, 2013, retrieved from http://www.kapk.org/index.php?option=com_content&task=view&id=19&Itemid=31&lang=sr.

[47] When calculating the minimal number and workload of teachers and associates in the realization of DLS study programs, the following approach is used:
1. The workload of a teacher is determined by an electronic formula on the level of a group of students, with a 50% of the workload he/she would have in the case of traditional studies.
2. The minimal number of teachers needed for the realization of a DLS study program is determined as for the traditional studies for one group, while the calculated minimum number of teachers has a 50% workload for traditional studies (3 hours of lectures per week).
3. The minimum number of associates is determined when the product of the number of subjects per semester (who has a larger number of subjects) and the number of students is divided by the maximum number of students per associate (80).
4. The workload of assistants working on DLS consultations (interactive work with students) is calculated based on the number of students who require DLS consultations, where the workload for working with 16 students is equal to the workload of one hour of active lessons per week (up to the total maximum workload of 5 hours per week).
5. If a teacher is engaged in performing DLS consultations, the effective workload of the teacher is, like in the case of traditional studies, half the amount of the workload of an associate working with the same number of students.
The instructions for preparing the documentation for the accreditation of a distance study program, *Accreditation and Quality Assurance in Higher Education,* Belgrade, 2013, retrieved from http://www.kapk.org/index.php?option=com_content&task=view&id=19&Itemid=31&lang=sr.
It is recommended that instead of this complicated way of calculating the workload of teachers, the required number of teaching staff for the implementation of distance study programs should be calculated in the same manner as for traditional studies, based on the number of students and the number of hours needed to communicate with students.

distribution of multimedia teaching contents aimed at independent acquisition (texts, audio and video information) and for the complete management of the learning process;

- different forms of teaching: public transmission of planned teaching events (transmitting lectures or discussions of teachers/experts filmed with video cameras live, or previously created and prepared video footage), delivering lectures and multimedia teaching materials from the server and consultations for guided and informal via discussion forums;
- a unique user interface which supports multiple categories of users, including students, teachers and administrative staff;
- high quality two-way communication between teachers and assistants and students, which enables the services of electronic mail, discussion forums and real-time discussions;
- the ability to monitor the time a student has spent studying the teaching materials and the testing and grading of a student via tests, with the support and under the control of a specialized software package
- a high reliability of the system through an appropriate system of access control and content protection.[48]

The higher education institution needs to provide access to its own or other appropriate libraries, and especially to organizations specializing in the delivery of electronic textbooks and other teaching and scientific publications.[49] The higher education institution needs to have facilities which provide space and conditions for a normal conduction of a final exam, the activities of administrative staff[50] and the housing and work on the maintenance of an integrated computer platform for the support of distance learning.[51] Aiming to improve the quality of consultations, the institution of

[48] Standard 12.9 of Standards and Procedures for Accreditation of Faculties and Faculty Curricula of the First and Second Level of Higher Education, *Accreditation and Quality Assurance in Higher Education*, Belgrade, 2013, retrieved from http://www.kapk.org/index.php?option=com_content&task=view&id=19&Itemid=31&lang=sr.

[49] Standard 12.10 of Standards and Procedures for Accreditation of Faculties and Faculty Curricula of the First and Second Level of Higher Education, *Accreditation and Quality Assurance in Higher Education*, Belgrade, 2013, retrieved from http://www.kapk.org/index.php?option=com_content&task=view&id=19&Itemid=31&lang=sr.

[50] Another recommendation is that an institution of higher education which has been accredited for at least one distance study program should provide at least one expert in charge of the technical preparation of teaching materials and one system administrator for technical support during the process of distance learning. Also, an administrative worker needs to be provided who will be in charge of the administrative and technical support for distance students.

[51] Standard 12.11 of Standards and Procedures for Accreditation of Faculties and Faculty Curricula of the First and Second Level of Higher Education, *Accreditation and Quality As-*

higher education can establish consultation centers geographically distant from the seat of the institution, which have an information-communication base integrated into the system of distance learning, expert references and which enable practical demonstrations.[52] In the process of accreditation for a distance learning system, the institution of higher education must prove it complies with all the relevant standards, and especially the said standard 12 of the Standards and Procedures for Accreditation of Faculties and Faculty Curricula of the first and second degree of higher education which refer to distance learning.

The study materials package should include the following conditions:

- it is an adequate system for the individual acquisition of the content of the foreseen knowledge,
- an adequate system of self-assessment is located within the system,
- the foreseen material and additional tools are methodically fit,
- the system enables a continued development of learning materials.[53]

Special attention should be paid to the quality, content and extent of the teaching materials given to students, access to materials and availability of teachers and associates for interactive work (consultations).[54] Students registered for a study program which is executed via distance learning must be informed in detail and unambiguously about the conditions and demands stemming from the specific circumstances of distance learning. Students enrolled in distance learning can transfer to the traditional programs in a way and under conditions defined by acts of the institution of higher education, but only within the total number of students foreseen by the accredited traditional program.[55]

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surance in Higher Education, Belgrade, 2013, retrieved from http://www.kapk.org/index.php?option=com_content&task=view&id=19&Itemid=31&lang=sr.

[52] Standard 12.12 of Standards and Procedures for Accreditation of Faculties and Faculty Curricula of the First and Second Level of Higher Education, *Accreditation and Quality Assurance in Higher Education*, Belgrade, 2013, retrieved from http://www.kapk.org/index.php?option=com_content&task=view&id=19&Itemid=31&lang=sr.

[53] Instructions for the preparation of documents for the accreditation of distance study programs,*Accreditation and Quality Assurance in Higher Education*, Belgrade, 2013,retrieved from http://www.kapk.org/index.php?option=com_content&task=view&id=19&Itemid=31&lang=sr.

[54] Instructions for the preparation of documents for the accreditation of distance study programs, *Accreditation and Quality Assurance in Higher Education, Belgrade*, 2013,retrieved from http://www.kapk.org/index.php?option=com_content&task=view&id=19&Itemid=31&lang=sr.

[55] Instructions for the preparation of documents for the accreditation of distance study programs, *Accreditation and Quality Assurance in Higher Education,* Belgrade, 2013, retrieved from http://www.kapk.org/index.php?option=com_content&task=view&id=19&Itemid=31&lang=sr.

THE ETHICAL ASPECTS OF DISTANCE LEARNING

Ethics in education, as well as in e-education, is manifested in the relations between students and teachers, in the process of scientific research, behavior on the Internet, abuse of electronic data, use of electronic sources, conduct during exams and other forms of academic fraud. Brey suggests there are four major areas of social and ethical concerns regarding distance learning and teaching. He depicts these areas as questions. „Can social, cultural and academic values be successfully transmitted in computer-mediated education?... Are computer-mediated educational settings conducive to academic freedom or do they threaten to undermine it?…Does a reliance on computer networks in higher education foster equality and equity for students and does it promote diversity, or does it disadvantage certain social classes and force conformity?… What kinds of unethical behavior by students and staff are made possible in computer-mediated education, and what can be done against it?"[56]

Virtual space is infinite, but it does not promise universality or equity, nor is it appropriate for many students whose experience with technology is limited—and who might benefit far more from traditional delivery systems.[57] Also, distance learning has been argued to be an equalizer by making academic education more accessible. Most importantly, it has been claimed that distance education may shatter geographical barriers to educational access and provide educational opportunities to people who may otherwise have not been in a position to enter the higher education system: people trapped by geographic isolation, economically disadvantaged people, people with health problems or handicaps, people who suffer discrimination, and people with jobs who are unable to relocate to a city with a university.[58] Also, those with limited computer experience will be handicapped in their ability to access knowledge and avail themselves of the ever increasing variety of learning experiences.[59] Can universities that strongly rely on computer-mediated education serve as proper vehicles for the transmission of academic values such as honesty, objectivity, fairness, trust, collegiality, respect, accuracy, thoroughness, independence, openness, curiosity and re-

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[56] P. Brey, *Social and ethical dimensions of computer-mediated education,* „Journal of Information, Communication and Ethics in Society" 2006, No. 2, p. 91, retrieved from http://www.utwente.nl/gw/wijsb/organization/brey/.

[57] L. Gladieux, W. Swail, *The virtual university and educational opportunity: Issues of equity and access for the next generation*, The College Board of the United States, Washington, D.C, 1999, p. 22, retrieved from www.educationalpolicy.org.

[58] J. Daniel, *Mega-universities and knowledge media: Technology strategies for higher education*, London: Kogan Page, 1996, cited in P. Brey, *op.cit.*, p. 97.

[59] L. Gladieux, W. Swail, *op.cit.*, p. 20.

sponsibility? A number of authors have argued that they cannot. They have argued that a profound learning experience, which includes the transmission of academic values, requires real-world settings in which people engage in face-to-face interaction.[60] Next to these critical voices, there are also authors who are optimistic about the possibility of transferring academic values in distance education, as well as the possibility of developing genuine apprenticeship relations and building genuine academic communities. John Daniel, vice chancellor of the Open University in the U.K., argues that „distance learning can be absolutely consistent with academic values „if faculty and administrators are committed to them and distance education courses are set up in the right way".[61] Ethical principles can and should be built in to distance learning programs, and must also be modeled and proactively made a part of the course by faculty as the need for the ethical principles has been felt by both the teacher and the taught.[62]Surveillance of students is also an issue in all distance learning programs. We are able to track student's participation, what they read, when they read it, and the number of responses they post.[63]Ethics and social responsibility means that is important to educate people to behave in ethically and socially acceptable ways, not only students but also staff and university policy makers.[64]And we have a permanent record that we can return to. The question is therefore asked whether it is ethical to use information generated in this way. Most e-students are not aware that data about their activities is being recorded and stored. Academic fraud is another important issue with distance education in general. It may be more problematic than the conventional on-campus classes, since it is more difficult to ascertain whether the distance student is doing the work and the assignment is indeed done by the student enrolled or not.[65]Fass identifies the following categories of academic fraud in the distance learning

[60] P. Brey, *op.cit.*, p. 92.

[61] *Ibidem*, p. 93.

[62] C. Anitha, T. S. Harsha, *Ethical Perspectives in Open and Distance Education System*," Turkish Online Journal of Distance Education", 2013, No. 1, p. 199. retrieved from http://web.b.ebscohost.com.proxy.kobson.nb.rs:2048/ehost/detail?sid=8ad6bc22–54e9–41f5–9308–9b73f8804e69%40sessionmgr114&vid=1&hid=113&bdata=JnNpdGU9ZWhvc3QtbGl2ZQ%3d%3d#db=eric&AN=EJ1006258.

[63] B. Anderson, M. Simpson, *Acting with integrity online: Some questions for educators*", Australian Society for Computers in Learning in Tertiary Education Annual Conference", 2008, p. 37, retrieved from www.ascilite.org.au.

[64] H. Ashman, T. Brailsford, A.I. Cristea, Q.Z. Sheng, C. Stewart, E.G. Toms & V. Wade, *The ethical and social implications of personalization technologies for e-learning*, „Information & Management" 2014, No. 51, p. 829.

[65] E. Toprak, B. Ozkanal, S. Aydin, S. Kaya, *Ethics in E-Learning*, „Turkish Online Journal of Educational Technology" 2010, No. 2, p. 79. retrieved from http://eric.ed.gov/?q=Ethics+in+E–Learning&id=EJ898005.

environment: inappropriate assistance on examinations, misuse of sources on papers and projects writing assistance and other inappropriate tutoring, misrepresentation in the collection and reporting of data, improper use of academic resource, disrespecting the work of others, lack of protection for human subjects in research, breaches of computer ethics, lack of adherence to copyright and copy-protection, providing inappropriate assistance to others, lack of adherence to academic regulations.[66] Gearhart reminds that developing a guide for distance students must be more content rich as listed: (1) Ethics of examinations (2) use of sources on papers and projects (3) writing assistance and other tutoring (4) collecting and reporting data (5) use of academic resources (6) respecting the work of others (7) computer ethics (8) giving assistance to others (9) adherence to academic regulations. It is important to keep in mind that in distance education, the student population is more diverse.[67]Institutions should develop e-learning policies and guidelines for legal materrs such as privacy, plagiarism and copyright issues at the very beginning of their e-learning initiatives.[68]

CONCLUSION

Institutions of higher education, based on the Law of Higher Education, can organize distance studies based on their licenses, if they meet the standards prescribed by the National Council for Higher Education. Even though distance studies are equated with the conventional form of studies in Serbia, a small number of faculties implements distance studies in the full sense of the word. Some of the reasons are lack of information as well as a fear of new approaches, whether by the students, their parents of employers. Some faculties in Serbia have some form of distance studies. However, we are still far from the model that exists in other universities across the world. Some of the criticisms are aimed at the lack of digitalized books, scholarly journals, magazines. A bad image of distance learning is harmful to all, and an increased trust in online studies will benefit everyone.

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[66] T. Brown, *Ethics in e-Learning*, „iBiZ2008 Workshop for Net Business Ethics" 2008, p. 2, retrieved from http://www.gsim.aoyama.ac.jp/ORC/iBiZ2008/papers/Brown.pdf.

[67] D. Gearhart, *Ethics in distance education: developing ethical policies*, „Online Journal of DistanceLearning Administration" 2001, No. 4, retrieved from http://www.westga.edu/~distance/ojdla/spring41/gearhart41.html.

[68] B.H. Khan, *Managing e-learning: Design, delivery, implementation, and evaluation*, Idea Group Inc (IGI), 2005, p. 303, retrieved from https://books.google.rs/books?hl=sr&lr=&id=WVL9ix9EZskC&oi=fnd&pg=PR7&dq=ethical+e–learning&ots=S2oJVK4RVM&sig=vH7WlF–q82V–ymE3LGhMbsUmX9o&redir_esc=y#v=onepage&q=ethical%20&f=false.

The experiences of the National Employment Service also speak of the prejudice regarding distance learning in Serbia. Employers ask for a verification of the study program itself, they ask if students passed their exams in a traditional way. If they have, they accept these diplomas, but if they have not, they shrink away from them, claims the NES. Distance studies have not come to life in a proper manner in Serbia, unfortunately. Parents still fear of enrolling their children, they have the wrong belief that their children will not be committed enough. The costs of studies are a little higher than in the case of traditional studies, because a strong server is needed.

Educational institutions have a moral obligation to provide quality education to students and society. The knowledge and competencies of graduated students need to be on the same level as those of the students who have attended traditional forms of studies. It is evident that distance learning harms the environment to a lesser extent and enables access to education to wider social groups. Distance learning develops different skills not present in traditional forms of learning, such as browsing, searching for necessary information on the Internet, storing data, summarizing adequate information, etc. In order to increase the number of institutions of higher education which organize distance studies, further research is needed aiming to find ways to change the current state in the field of applied study concepts to distance learning at graduate schools, faculties and universities in Serbia.

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THE IMPORTANCE OF E–LEARNING IN THE PROCESSES OF ORGANIZATIONAL LEARNING BASED ON THE EXAMPLE OF A UNIVERSITY

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Abstract

The results of the study indicate students' interest in the form of education, which is e-learning. However, they see in e–learning primarily an opportunity to supplement traditional teaching methods such as lectures, exercises and tutorials. Thus clearly indicating that the direct contact with the teacher, the opportunity to exchange of views with the group in the classroom is an important part of the study which the students do not want to give up. Culture and organizational climate typical of the university is one of the important factors that make universities are not deserted places. Learning from others, resonance behavior is most perceptible in direct contacts between people. If e–learning is one of the tools that will enable our students to acquire knowledge faster it will convince thousands who are not convinced today. Time is one of the most important determinants which militate in favor of e–learning as a method of teaching.

Key words: e-learning, learning organization, the concept of organizational learning

INTRODUCTION

Organizations operating in the information age are based on integrated processes, penetrating traditional organizational structures, based on the assumption that a human being should be a source of solutions to problems[3]. Innovation, above all, is essential and the rule is the risk, uncertainty and

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[3] R.S. Kaplan, D.P. Norton, *Strategiczna karta wyników, Jak przełożyć strategię na działanie,* PWN, Warszawa 2001, p. 25.

constant change. Changes in the functioning of the university system, as well as other organizations have been determined by such factors as: the Internet, space, time, efficiency, people, networks, globalization.

Information technologies, which until recently only served to improve the processes are the basis for the organization of the twenty-first century. Their inclusion into an integrated global network has created a new quality. Internet has transformed the way of doing business not only as far as economy is considered at every stage of the chain of values. It is revolutionizing access to information and means of communication, its impact can be seen in all areas of the economy. It can be assumed that Internet as a carrier of information and knowledge becomes a decisive criterion of business success or failure of companies.

The relatively low cost of the Internet infrastructure makes international scale operations available even for small businesses. It can be argued that information and knowledge are the elements that create added value, increase the efficiency and effectiveness of management. It should however be borne in mind that the Internet infrastructure is just a tool to help spread knowledge and intellect. In the world of immediate connection one may have many gains owning the ability to react immediately, to learn and adapt to the market without delay.

Universities have become educational institutions, research institutes are mainly engaged in the research and all this leads to the industrialization of science, it becomes a kind of industry. Science and technology that were once mostly wisdom and skill, operate on the basis of enterprises today. [4] The growth rate of the practical application of knowledge determines the tasks faced by the universities, the need to redefine, or define new objectives and strategies, draw attention to the need to reach for new solutions in the area of information and communication such as the Internet which allows to overcome the barriers of distance and provides the ability to contact in many different ways. The use of e-learning platform in the learning process is one of the possibilities to support traditional forms of education.

THE CONCEPT OF ORGANIZATIONAL LEARNING

For the first time the concept of the learning organization emerged in P. Senge's[5] work in the late 80s and 90s of the twentieth century, who noted

[4] B. Cyboran, *Nauczyciele akademiccy a popularyzacja wiedzy*, Wydawnictwo Uniwersytetu Jagiellońskiego, Kraków 2009, p. 133.

[5] P.M. Senge, *Piąta dyscyplina*. Teoria i praktyka organizacji uczących się, Oficyna Ekonomiczna, Kraków 2006.

that the organization, like the human being also has the ability to learn certain rules of conduct, actions and anticipate the process which will take place in future. The organization is a whole with its own identity. It is thanks to these characteristics, according to Senge, organizations are able to adapt to the new circumstances in which they come to function. By Senge learning organization is a place where people continually expand their capacity to produce results, which truly desire, where people are continually learning how to learn together, where people constantly discover that they create reality, and how it can be constructed by them.

Continuous improvement is the key to survival and development in the conditions of global orientation, where the only the change is certain. Improvement must include such areas as:

- professional development
- disclosing and explaining the mental models of the actions of people and organizations,
- creating a shared vision of the future of the organization,
- organizational learning and improvement in the team,
- the ability to unlearning and learning new things quickly, to use the knowledge gained in order to improve operational effectiveness.

Organizations, able to build a lead of tomorrow, are, according to P. Senge, the ones that will possess the ability of a new perspective dealing with the social potential of the place and role of social organizations. They will learn to use human motivation and the ability to learn at all levels in the right way.

In order to realize the idea mentioned above it is necessary to have the ability of systemic thinking, moving away from a focus on small fragments of reality, isolated from the larger community and to look at the phenomenon as part of something more complex. This systemic approach to the organization and its problems accounted for Senge starting point for the analysis and identification of the relationships between the elements of the organization and the organization and the environment. The title itself „The Fifth Discipline..." alluded to systemic thinking skills, which is evident in the indications adopted by the author:

1. Today's problems stem from yesterday's „solutions."

2. The harder the push, the stronger the resistance of the system. Changes made in good faith.

3. Many simple interventions bring short-term improvement.

4. Simple solutions to new problems known from the past usually lead to the starting point.

5. In terms of complex systems simple and well known solutions do not always come true.

6. The new management paradigm requires the adoption of a dynamic perspective analysis of the problems, which allows you to see all their complexity.

7. Solutions must be sought in a change in the relationship between the elements of the system.

From the above discussion outlines the concept of the learning organization capable of self-discovery, understanding its own problems and of how to solve them using past experience - successes and failures.

Learning organization continually improves through the creation and strengthening of the capacity necessary for achieving success in the future, which in turn allows you to:

1. Systematic problem solving,
2. experimentation,
3. learning from experience,
4. learning from others (benchmarking).

However, in order to achieve these objectives it is necessary to: encourage organizational structure that facilitates learning, support culture – which help challenges, questioning assumptions and established ways of doing things, as well as the management delegating powers, which, in turn, leads to share the responsibility for decisions and creating the proper climate for teamwork with others.

Not without significance is the creation of an appropriate motivational system that makes employees constantly want to learn. The concept, presented by P. Senge, certainly has some limitations, however it, is so versatile that it allows its reference to different types of organizations, both in the business sector, public organizations, as well as the third sector.

Many authors point to the fact that the condition for the effectiveness of this concept is to avoid basic mistakes that are committed in the learning process. When organizations begin to perceive patterns and repeatability of errors, will be able to isolate the problem and avoid it in future activities. The main factor limiting the learning processes is the thinking according to accepted patterns, lack of imagination, because imagination is the source of value in the economy.

LEVELS OF ORGANIZATIONAL LEARNING

Assumptions of a learning organization can develop new forms of organization, in which there is a shift from vertical to horizontal, more and more tasks are performed in interdepartmental teams working on specific projects. There is a new quality of labor resources - learning organizations inte-

grate employees with different social, cultural groups, the recognition in the company is based not on the formal position, but the expertise and contacts, job satisfaction is determined not so much by belonging to the company, what by the nature of work.

Learning organizations are often regarded as the sum of the knowledge individual employees have, which in turn means that it has reached a final state, becames the learning process provides a constant developmental continuity. In the literature, one can see a variety of views on the definition of a learning organization. Each of the authors dealing with this problem suggests a different model, shows different characteristics, a model of the learning process, or implementation of, none of them, however, is universal or the final model.

P. Senge wskazał na pięć obszarów (dyscyplin) organizacji uczących się, stanowiących obszary doskonalenia i umożliwiających procesy uczenia się (tab. 2).

The concept of the learning organization is considered as more of a specific philosophy of action than a particular form of organization. So it may take various forms of action whilst constantly learning, which forms the key resource of any organization which are knowledge and competence. Learning processes are important enough as they determine the capacity for self-renewal and can provide a higher level of efficiency. P. Senge pointed to five areas (disciplines) of learning organizations, which are fields of improvement and enabling learning processes (Tab. 2).

Table 2. Discipline of thelearning organization

Discipline	**Essence**	**Learning organization principles**	**Collaborative innovation practices**
System thinking	• existence, • creativity, • link,	• vision, • creative tension and emotional tension, • subconscious,	• clarifying personal vision, • maintaining creative tension: a focus on results, observing what is happening, • making choices
Personal mastery	• holism, • mutual ties • humility,	• theories and theories used declared, • balancing inquiry and counseling,	• system archetypes, • simulations,

Mental models	• love of truth, • openness,	• theories and theories used declared, • balancing inquiry and advice	• distinguishing data of abstraction based on the data, • checking assumptions
Building shared vision	• community features, • partnership,	• a shared vision as a hologram, • commitment and vulnerability	• the process of creating a vision: to share a personal vision, listening to other admission freedom of choice • understanding the current reality
Team learning	• team intelligence, • joint orientation	• dialogue, • integration of dialogue and discussion, • defense procedures	• suspension of assumptions, • act as colleagues, • collectivity

Źródło: ownstudybased on: Senge P.M., *Piąta dyscyplina*, Oficyna Wydawnicza AFM, Kraków 2006.

Underlying the success of learning organizations is building personal mastery, involving the continuous creation of its vision of the future, the accumulation of energy, shaping patience and impartial observation of reality. There is a close connection between individual and organizational learning - the ability to learn in the organization may not exceed the ability of learning of its members. Factor that conditions the process of achieving personal mastery, which is the starting point in the process of organizational learning is the need to create a proper organizational culture, as well as the adoption of the creative way of seeing the world.

The results of organizational learning are dependent on the adoption of mental models[6] and patterns indicative of mental shortcuts, which are a set of rules about how to perceive the world by the staff and the organization. Their significance determined by the fact that they allow you to re-look at the organization, create new solutions that go beyond the existing framework. These facilitate the learning of dialogue and conversation, allow to open to the views of others, constitute the common categories of thinking

[6] R. Foster, S. Kaplan, *Twórcza destrukcja*, Galaktyka, Łódź 2003, p. 222.

skills, which enables organizations to examine the learning and understanding of the diversity of personal and common components of the surrounding reality, determining the process of building of a common vision.

It is the common vision and purpose which are integrating elements of any organization, are an expression of the aspirations and desires, give the same sense of the meaning of existence and a common identity. However, to set up a vision which should perform its integrating functions in the full range, it is necessary to create an image of the future organization so attractive for participants that it could liberate authentic commitment instead of habitual subordination. It enables creative learning, changing the ratio of employees to the organization, which becomes „ours" instead of „theirs"..

Pointing to the foundations of learning organizations can not ignore the issue of collaborative learning. Organizational learning enables the development of knowledge in the group and by the group, is the process of targeting the development team and its features. Active structures decided about learning opportunities which result from thinking processes that cause the action. In the process of individual learning these structures have been determined by the mental model of the human being, which is deeply rooted in the memory of a man and reflects the world as the result of perception of that world by that man.

In the above mentioned proposal of P. Senge three basic levels of organizational learning appear: [7]

a) the level of the individual,

b) the level of the team,

c) the level of the organization.

Learning organization takes place in two consecutive cycles, individual mental models are created by individual learning experience. The changes of common model exist by absorption of individual experiences[8]. This process involves collaboration in an atmosphere of trust, promotes the achievement of synergies by combining the mental capabilities of many people. Being shared mental model is not only the sum of the individual models, which is consistent with the systemic concept of organization.

[7] B. Mikuła, *W kierunku organizacji inteligentnych*, Antykwa, Kraków 2001, pp. 23–27.

[8] See also J. Rokita, *Zarządzanie strategiczne. Tworzenie i utrzymanie przewagi konkurencyjnej*, PWE Warszawa 2005, s. 108 i dalsze.

Table 3. Levelsand the basicways of achievingorganizational learning

Level / way of learning	Traditional	Experiential	Cybernetic
Individual	Individual competence development through self–education (study), participation in courses and training.	Gaining experience through practical action; Learning from mistakes.	Analysis and evaluation of own abilities; Individual exploration of internal assumptions about the organization, their analysis and evaluation, transmission of information coming from the environment to the database.
Collective	Staff team training aimed at increasing the skills of teamwork; Cooperative learning;	Gaining experience through collaborative action Developing skills of dialogue; Learning from others; Making changes.	Overview of crises and dangerous situations , Questioning assumptions about the team functioning; Create and explain the vision of the future; Team working on new solutions
Organizational	Knowledge which comes from the professional literature; Continuous training processes.	Functional and external benchmarking; Needs analysis; Analysis of development trends.	Creating the database of information from the environment; Distribution of information; Questioning the models of assumptions concerning the functioning of the organization.

Source: B. Mikuła, *W kierunku organizacji inteligentnych*, Antykwa, Kraków 200, p. 24.

Presented assumptions underlying of learning organizations show us that the success of an organization depends on the ability to predict and anticipate the future and to create them actively. In the absence of skills: accumulation of knowledge , analytical thinking, drawing conclusions, as well as organizational imagination one can look for sources of failures of many organizations. Asking new questions, showing new possibilities, examining old problems from a new angle (new point of view) requires creative imagination and it means real progress.[9]

From the perspective of pedagogues there are certain methods on each level of learning that allow you to optimize the acquisition of knowledge.

[9] G. Morgan, *Wyobraźnia organizacyjna*, PWN, Warszawa 2001.

Classification methods based on the concept of multilateral teaching-learning developed by W. Okoń: [10]

- methods of assimilation of knowledge – learning by assimilation: talk, discussion, lecture, work with a book;
- methods of self investigating into knowledge, self-discovery learning; classic problem method, the method of the cases, the situational method , exchange ideas microteaching, educational games;
- valorization methods of – learning by experiencing; impressionistic methods, expressional methods;
- practical methods of – learning by doing; training methods of, methods of carrying out the creative tasks.

One of the methods reported by the authors involved in learning methods is storytelling. According to several classifications of teaching methods is the method of storytelling that belongs, for example, according to F. Bereźnicki and B. Niemierki, to the category - feeding methods, according to Cz. Kupisiewicz's to verbal methods while W. Okoń has placed it in the group of knowledge assimilation methods with some elements of methods included in the group of self-knowledge investigation methods.

Storytelling is telling the stories that allow to remember the past, giving the sense of the present and create the future. Some stories tell us who we are and who we can be. While other stories show us what we can and what we can not do. Some stories allow to simplify the complex world. Other stories show us beauty of the world. People love to listen to the story, as good story can make a fire in the hearts of the people and unite them. Stories can cause tears, laughter, action. A good story accompanies us in life. People usually don't remember well the tables, statistics, charts, however, interesting examples and stories remain in the memory.[11]

K. Ferrazzi emphasizes that at work we express the preferences as for us the language of communication is considered. Some are more tied to quantitative data (prefer the untreated figures), while others have good eyesight (prefer pie charts and bar charts). There are also those who are most willing to listen to the stories and anecdotes.[12] Narrated stories, using posture, voice timbre, involvement in the story, the testimony coming from experience cause that telling story touches everyone in a different way. Listening to stories, being told to us we relate them to our own experiences and we have the opportunity to analyze them in the selected

[10] W. Okoń, *Wprowadzenie do dydaktyki ogólnej,* Wydawnictwo Żak, Warszawa 2003.

[11] O. Rzycka, *Menedżer coachem*, Oficyna Wolters Kluwer Business, Kraków 2010, s. 131.

[12] K. Ferrazzi, *Unikaj wirtualnych nieporozumień*, „Harward Business Review Polska", lipiec–sierpień 2013, s. 18.

range. How much the story changed in our lives depends only on ourselves.

O. Rzycka believes that stories are cognitive units, our brain collects information and gives them meaning through stories. Stories give meaning, order, predictability of the chaos that is happening around us, helping to express fears and joys, talk about dreams, to see things through the eyes of other people and acquire such an understanding of the world that was not previously known to us.[13] Stories allow to explain the complicated reality. Storytelling is the foundation of the teaching role of teachers who use this method to inspire and capture the imagination of pupils, learners and students. If telling the stories and direct contact were not as important elements in the acquisition of knowledge, any kind of knowledge acquisition could be made at a distance.

DETERMINANTS OF LEARNING PROCESSES AT UNIVERSITY

Higher Education in Poland is one of the fastest growing areas of social life. In recent years, it passed major changes both in the institutional area, as well as qualitative and quantitative. These changes were determined by the political, social and technological (IT revolution) processes. The basic task faced by universities was to provide staff with the right skills - to the fore put forward the educational function was the most important one (taking into account the massive increase in the number of students), along with the traditional functions of scientific research explorations.

D. Wodnicka draws attention to the wide and long-range changes which led to the contemporary shape of teaching at the university level. Considered as the main reason for the transition from elite higher education model to egalitarian model, which proved to be the main factor that led to numerous changes. In addition to the dramatic increase in the number of students in most developed countries (currently from 30 to 50% of the age group finishing the secondary school), it should be also noted that the demands of students concerning the quality of higher education increase. The transition from elite model of studies to mass education at the tertiary level is recorded in the whole world. In Poland, in 1990, studied only 384 thousand people were studying while in 2001 already 1.5 million.[14] According to CSO

[13] O. Rzycka, *Menedżer coachem…*, *op. cit.* p. 131.

[14] D. Wodnicka, *Dlaczego TBL? W odpowiedzi na wyzwania stojące przez dydaktyką szkoły wyższej*, Centrum Badań i Rozwoju WSHE [w:] *Innowacje w Edukacji Akademickiej*, nr 1/2004, p. 4 – Source: www.cbe.ahe.lodz.pl/archiwalna_cbrk/dw_art1.doc - (collected date 17 of November 2014).

research CSO the number of higher education institutions in the academic year 2012/2013 compared to 2000/2001 academic year increased by 46.1%, in comparison with the previous year decreased by 1.5%. In the academic year 2012/2013 of 1676.9 thousand educated. Students were studying at 453 colleges and universities of all types.[15]

Later in her paper D. Wodnicka notes that quantitative changes were accompanied by qualitative transformation in the group of potential students. Current and prospective students are educated in the information society and will be forced to function in the knowledge-based economy, which distinguishes them from their peers who started their work a few or several years before. In the preparation of the characteristics of the target group to which the service is directed help high school education research results, among others, conducted by the Centre of the Studies of Higher Education (University of Melbourne). They confirm the significant increase in the number of students in the labor force. Therefore, adapting the demands of the academic year for a professional career are not unfounded.[16]

Similar observations were made by American researchers conducting interviews as part of one of the studies on the lifestyle of young people from schools (potential customers of academic institutions). Particularly noteworthy is the statement, highlighted in the reports concerning the labour activity of the youth, „sometimes we felt as if we were talking with the staff looking for the further education and training, and not with the disciples who earn money". This impression was caused by the disposal of the experienced pupils, by the responsible attitude in relation to their duties and the crystallized plan of their own careers.[17] This attitude has a direct impact on the ratio of students to educational services offered to them. The most efficient use of time spent at the university becomes important for them.

The problem of study course is a key factor in popularizing the knowledge. The main advantage that was and is still important for the students is its practical application. Other motives for studying are cognitive motives, (acquiring knowledge) and the social ones (establishing contacts).[18]

In the contemporary reality Universities are of particular importance as part of the system of creation and implementation of knowledge. The introduction of European and National Qualifications Framework, creating pro-

[15] *Higher Education Institutions and Their Finances in 2012*, Statistical Information and Elaborations, Warsaw 2013, pp. 25–26.

[16] D. Wodnicka, *Dlaczego TBL?..., op. cit.*, p. 5.

[17] *Ibidem*, pp. 4–5.

[18] A. Bron-Wojciechowska, *Słuchacze uniwersytetów powszechnych TWP,* [w:] *Teoria i praktyka upowszechniania wiedzy,* W. Okoń(red. nauk.), Wiedza Powszechna, Warszawa 1979, s. 212.

grams based on learning outcomes, recognition of the achievements of non-formal and informal learning lead to change their way of thinking about academic education[19]. Academic education in accordance with modern trends are focused on student. Learning is dominated by the teaching, and the main objective is committed to preparing students to live, work and meet the challenges of a rapidly changing reality.

The above-mentioned objectives that are currently facing universities areas should be made:[20]

1. Education:

– the development of social skills, personality development, critical thinking skills;

– equipped with the knowledge, competencies;

– develop their ability to adapt to changes in the labor market;

– the development of rational, ethical and engaged citizenship;

– breaking down barriers and ethnic prejudices;

– building positive relationships between people of different nationalities, religions and beliefs;

– develop openness to the world and sensitivity to culture;

– increasing awareness of the environment.

2. Scientific Research:

– creation of new knowledge;

– absorption of scientific research results conducted in the world and moving them to Polish reality;

– popularization of science in line with the knowledge society;

– cooperation with the social environment and business;

3. Cooperation with the social environment;

– support the development of civil society;

– nurturing national heritage;

– knowledge sharing.

The implementation of the above-mentioned tasks requires the creation of conditions which take into account:

– functioning of public authority for the development of the universities in the area, through the legislative system and the system of financing tailored to the Polish reality;

– the development of genuine cooperation with public and business sectors;

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[19] http://www.ementor.edu.pl/artykul/index/numer/43/id/897; W. Wróblewska, *Metody pracy ze studentami w kontekście efektów określonych w Krajowych Ramach Kwalifikacji dla Szkolnictwa Wyższego* (20 10. 2014).

[20] *Strategia rozwoju szkolnictwa wyższego w Polsce do roku 2020*, Instytut Badań nad Gospodarka Rynkową, Warszawa 2010, pp. 40–44.

– cooperation between universities in the field of teaching and research;

– providing students with opportunities to develop skills and acquire knowledge.

Given the above, the adoption the model of learning organization requires a paradigm management shift to one that will be based on the culture of responsibility, teamwork, creation of communication beyond the hierarchical dependence (Tab. 4).

Table 4. Shifting Toward a Knowledge-Sharing Organization

What shift in cultural norms and artifacts are some organizations trying to make to support a knowledge-sharing organization? The following list of concepts and phrases was compiled from interviews with senior line and staff executives.	
From	**To**
Knowledge hoarding is power	Knowledge sharing is valued
Many management levels	Few management levels
Sporadic training	Continuous learning
Position power	Network power
Inflated titles	Few or no titles
Uneven responsibility	Shared responsibility
Culture of blame	Culture of accountability
Rules-based	Values-based
Functional silos	Cross-functional teams
Risk adverse	Entrepreneurial
Inward-top management focus	Outward-customer focus
Only managers know financials	Open book
Information on need-to-know basis	Open door
Focus on talent, experts, and key employees	Focus on entire workforce—learn from each other
"What's in it for me?"	"What's in it for our customer?"
"It's not my job."	"How can we help?"
"Not invented here"	"Steal ideas shamelessly"
Climate of cynicism	Community of celebration
Task forces selected by management	Communities of practice

Source: B. Hacket, Beyond *Knowledge Management: New Ways to Work and Learn, The Conference Board Research Report,* New York 2000, p. 48 – http://www.providersedge.com/docs/km_articles/beyond_km_–_new_ways_to_work_and_learn.pdf (collected date 10 of November 2014).

E-LEARNING

Studies and study have changed over the past decades. Study model has changed, as well as methods of teaching. With the development of information technology teaching methods have become increasingly important method associated with the so-called distance learning characterized by separation of the teacher and a student from a group of learners, replacing direct interpersonal communication (typical for conventional education) by the communication supported by traditional mail and communication technology. Usage of Internet employing a learning process is related to the socio-technological changes:

1. hectic lifestyle,
2. The culture of immediate response,
3. computerization accompanying the formation of a knowledge society.

In recent years there has been growing importance of information technology and increase total number of users of the virtual network, and thus consumers online services. This implies an important role of teaching, supported by new technologies in the educational process. Hitherto overlooked area of research is increasingly deeper exploration because of the frequency of occurrence phenomenon.. Hence the interest in the issue. Higher education institutions can perform up to 60 percent of classes in the Internet 40 percent of classes must be held on the campus.

The draft regulation involves elimination of those limits[21]. At the same time the Ministry of Science and Higher Education still requires that the exams should be held in the headquarters of the university. According to the opinion of some experts still it can limit the interest in this form of education. The provisions concerning higher education does not permit the carrying of e-studies. Only in the context of full-time internal studies and part-time external studies the part of the course can be done using communication technology. State Accreditation Committee, evaluating courses of study, which use e-learning, checks whether it 40 percent of classes actually take place at the premises of the university, how the platform works and what are the methods of textbook preparation.

Technological development has given rise to new possibilities for communication at a distance, including the transmission of knowledge. The brand-new form of distance learning provides opportunities previously unavailable to many people eg. disabled students.

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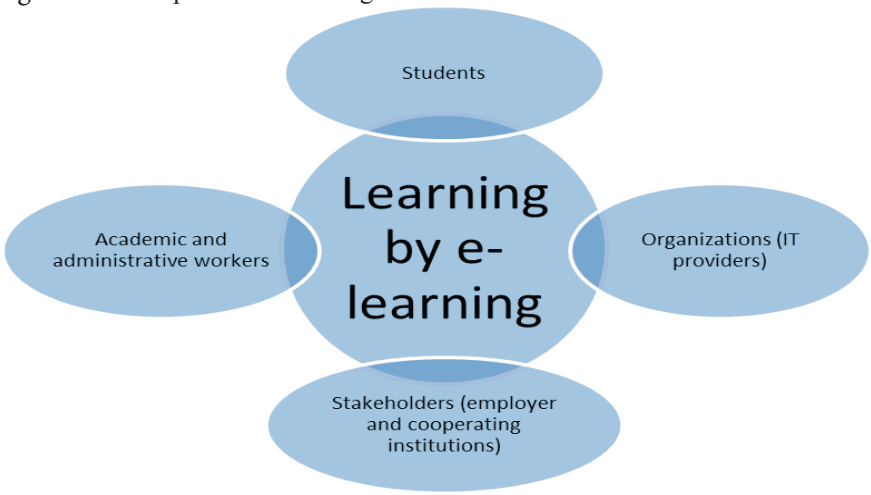
[21] http://prawo.rp.pl/artykul/757696,702226–E–learning––wiecej–nauki–przez–Internet–na uczelniach.html?referer=redpol.

Figure 1. Participants of e-learning



Source: own study.

Entities participating in learning through TBL (Technology-Based Learning) implement the assigned functions: starting from the preparation of tools, organizational preparation, motivate researchers to use the tools, the possible involvement of stakeholders and the adequate preparation of students to benefit from the new forms of teaching.

Undoubtedly, the use of e - learning and new technologies in teaching brings hitherto unknown learning opportunities. One should keep in mind that it is always a two-way relationship - on one side with an academic teacher, on the other side with the student. Which conditions should therefore be noted:

1. With the development of Internet Technology (IT) and computer tools, there is now the need for active „transfer" of the teaching process to the Internet.

2. The choice of teaching methods must always be adapted to the teaching objectives which should be achieved.

3. The use of new teaching tools not reduce the teaching level in universities - the form can not be a more important issue than the content itself.

4. One should seek a variety of methods and tools for the efficient transfer of knowledge, but in the current system it should be kept in mind that the inspection bodies do not give freedom in this respect.

ANALYSIS OF THE RESULTS OF THE RESEARCH

The study was carried out among students of different forms and fields of study. The study involved 133 people. The respondents are students of the Andrzej Frycz Modrzewski Cracow University Faculty of Management and Social Communication Sciences and the Faculty of Security Studies. The study was carried out among students of internal and external studies, at undergraduate and masters degree. Students answered the questions prepared in the form of a questionnaire containing closed questions, which allowed us to assess the attractiveness of e-learning courses for students of the University. The group which was investigated were men and women at different age groups. Demographic characteristic characteristics are presented in the table .

Table 5. Demographic characteristics of the respondents

Sex:	feamle	43%
	male	57%
Age:	below 20	12%
	21–25	79%
	26–30	2%
	31–35	6%
	36–40	1%

Source: ownstudy.

The most numerous group of the respondents were people at the age 21-25 years, who comprised 80% of the study group. The study takes into account the level and mode of study and the average marks obtained during the last academic year Distribution mentioned characteristics are shown in table.

Table 6. Charakteristic of students (%)

Level of study:	**Undergraduate**	**74%**
	Master degree	26%
Mode of study:	full-time	55%
	part-time	45%

Average rating:	3,0–3,5	10%
	3,6–4,0	42%
	4,1–4,5	42%
	4,6–5,0	6%

Source: Ownstudy.

Representatives of the undergraduate degree were group representing 74% of the respondents and 26% are students of the master degree.

Table 7. Defininge – learning by respondents

Way in which informationand knowledge are transferred	28%
Contacttool of teacherswith students	9%
Attractive formof teaching	37%
Not attractiveformof teaching	26%

lecture	**2,47**
exercises	**1,55**
parlor	**2,56**
E-learning	**3,32**

Source: own sutdy.

Teaching methods from the most important to the least important:
1 – the most important by respondents form of teaching;
4 – the lowest form of teaching evaluation.

Table 9. Weaknesses of e-learning classes

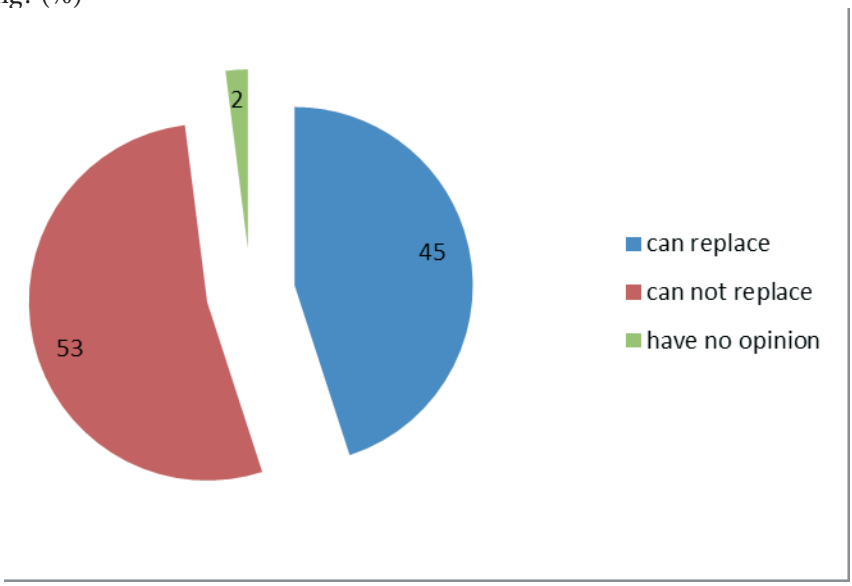
A	Limited access time to material	**21,48%**
B	The need to have the proper skills to use computers	**13,88%**
C	Too synthetic and precise presentation of knowledge	**16,74%**
D	Inability to take real-time discussion	**36,91%**
E	No direct contact with the teacher and the group	**47,34%**
F	Few interactive form of presentation of knowledge	**19.73%**

Source: own study.

Analyzing the student responses to the question: Is it possible to replace the traditional form of teaching via e-learning? 45% of people indicated that e-

learning is a form of teaching that can replace traditional methods trained. On the other hand, 53% believed that e-learning can not replace traditional methods which assume direct contact with the teacher and the university. 2% of the population of the study group had no opinion as to the possibility of replacing the traditional forms of education through e-learning (Figure 2).

Figure 2. Is it possible toreplacethe traditional form ofteachingvia e-learning? (%)



Source: own study.

Answering the question: What percentage of classes should be e-learning classes to be effective? Distribution of student responses are presented in table 10.

Table 10. Percentageof classeswhichshould bee-learningclassestobe effective

Percentage part ofe-learning's classes	**Percentage ofrespondents (%)**
less than 20%	23
20–50%	40
50–75%	14
100%	23

Source: Own study.

Among the benefits of the use of e-learning's classes in the process of teaching at university students pointed out, inter alia, the lack of restrictions

as to the time and place of the use of this form of education the possibility of reach the ready-made materials in synthetic and structured way. A detailed decomposition of responses are shown in table 11.

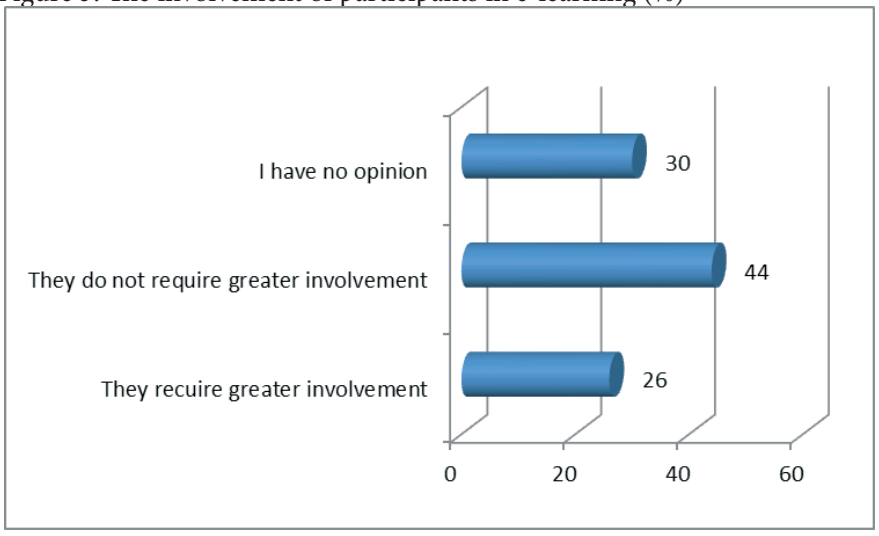
Table 11. Strengths of the e-learning (%)

The benefits associated with the use of e-learning:	
The ability to use e-learning platform anywhere and anytime	36
The availability of ready materials without having to take notes	31
The ability to repeatedly return to the listed content	18
The ability to acquire knowledge in friendly environmental conditions	14
I do not see the benefits	1

Source: own study.

Asking the question: Do e-learning courses require a greater commitment of participants than the traditional form of education? Positive answer of the respondents were in 26% of the responses 44% believed that e-learning does not require greater involvement of students, 30% of people are not able to indicate a definite answer.

Figure 3. The involvement of participants in e-learning (%)

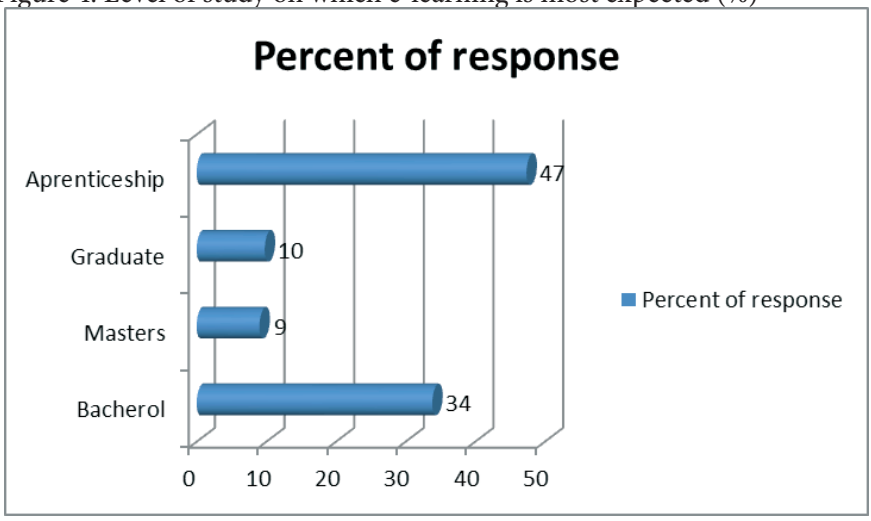


Source: own study.

On the other hand the question: Would you decide to study in e-learnig form? 1/3 of people responded in the affirmative indicating a willingness to study in this form. In contrast, 2/3 students recognized that they would not

have the study if they had classes only in form of e-leaning. Answering the question: Would you decide to study in the form of e-learning if the only direct contact was limited to exams during the session? 1/3 of the people said yes, 2/3 would decide not to take up studies in this form. Individuals were considered that e-learning can work best at the level of courses, training and similar. At other levels, the main preference was treating e-learning as a complementary form.

Figure 4. Level of study on which e-learning is most expected (%)



Source: own study.

In summary, the results of the study indicate students' interest in the form of education, which is e-learning. However, they see in e-learning primarily an opportunity to supplement traditional teaching methods such as lectures, exercises and tutorials. Thus clearly indicating that the direct contact with the teacher, the opportunity to exchange of views with the group in the classroom is an important part of the study which the students do not want to give up. Total adapt services to the possibility, skills and work pace of each student assumes e-learning. It is especially important for those already in work which subordinated to the schedule of work. In this type of education a student realizes the content of education at such time and in such extent that it is most appropriate.

Conclusions which were led out correspond with the opinion that further benefit that brings TBL in relation to future careers of students in the knowledge-based economy is to improve the process of training. Demands of lifelong learning propagated by most international organizations to guide

the changes in higher education preach the use of ICT in education. The inclusion of the latest developments in this field allows to change the the profile of education in an easy way at relatively low cost.

Attractiveness is also associated with a variety of ways to deliver content. Appearance of the new technological solutions designed specifically for educational institutions (eg. the interactive whiteboard) on the market opens great opportunities to use these tools to enhance your classes. The concept of attractiveness is also associated with the role that students play in the teaching process. This is what will activate and engage their attention, will automatically become attractive.

Implementing new teaching strategies based on the use of information technology opens extremely favorable conditions. Interactive educational materials, tools for effective communication between teachers and students and among the students helping to increase their involvement and activity. The course conducted through the TBL (Technology-Based Learning) will benefit from the attractiveness, the more will be interactive they will be.

CONCLUSION

The tasks faced by universities, the necessity to redefine, or define the new objectives and strategies highlight the inevitability reach for solutions that will meet the needs of students. Improving the tools to present knowledge and contact with the teacher via the university e-learning platforms will bring more supporters of this form of achieving knowledge. This will allow - as far as possible - to eliminate the weaknesses of e-learning, which are associated with limited contact with the teacher and a group of students. Besides, for a long time - at least at the undergraduate and graduate - e- learning does not displace the traditional forms of teaching, because of the importance of the students presence in place like the university campus, making contacts with the teachers and participants of studies and freely express their views by participating in polemics.

We must note that, as in the minority are those who prefer remote style of work, so the majority of students prefer classes in contact in real time without the mediation of technology. We conclude that culture and organizational climate typical of the university is one of the important factors that make universities are not deserted places. Learning from others, resonance behavior is most perceptible in direct contacts between people. Considerable barrier to creating conditions for the use of distance learning is the lack of competence related to the preparation of classes in the form of courses and ongoing support.

General conclusions of this paper emerge on the basis of the research as well as literature and questionnaires' are:

greater propensity to use e-learning occurs when people are employed.

noticing the advantages of using e-learning as a method of teaching requires the use of the tools and knowledge to improve presentations.

for student who is working it is important to use his time spent at the university in the most efficient way.

Considering the advantages mentioned above forms of teaching can not forget that they are based on a relationship with a student on the one hand, the teacher on the other hand. A limitation of new forms of learning can be no direct relationship, which can not replace a contact using e-learning platform.

P. Senge believes that today those companies win which are able to learn quickly where employees share and exchange knowledge. So workers cooperate. If e-learning is one of the tools that will enable our students to acquire knowledge faster it will convince thousands who are not convinced today. Time is one of the most important determinants which militate in favor of e-learning as a method of teaching.

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E-LEARNING AS AN INNOVATIVE FORM OF ACADEMIC INSTRUCTION

Grzegorz Kościelniak[1]

Abstract

The contemporary world undergoes numerous dynamic transformations e.g. in the sphere of culture, economy and social communication. A common phenomenon is considerable migration of population. In the era of widely developed informatization of social life the role of the Internet is growing and it is no longer only a source of entertainment, but also a means of communication as well as knowledge and skills acquisition. The transformations in the sphere of human existence should be followed by an adequate change to the ways in which man is educated. As it is emphasized in the source literature, one of the biggest contemporary challenges in education is meeting the requirements imposed by the information society.[2]

The purpose of the present work is to provide information about the issues connected with educating by means of e-learning and on the basis of this answer the question about the benefits of using this method for teaching at the level of higher education and dangers are associated with it. In this chapter the author will not only refer to the source literature or analyze the legal regulations concerning distance learning, but he will also present his own experiences in preparing courses and teaching in the form of e-learning.

Key words: e-learning, e-learning in the contemporary world, innovative form of academic instruction, innovative method for teaching, the tradition of distance learning, definition of e-learning, the influence of e-learning on the level of education, the main advantages of e-learning, the disadvantages of e-learning, blended learning.

INTRODUCTION

The contemporary world undergoes numerous dynamic transformations, e.g. in the sphere of culture, economy and social communication. A common phenomenon is considerable migration of population, both permanent

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[1] Wydział Prawa, Administracji i Stosunków Międzynarodowych Krakowskiej Akademii im. Andrzeja Frycza Modrzewskiego.

[2] J. Bednarek, E. Lubina, *Kształcenie na odległość. Podstawy dydaktyki*, Warszawa 2008.

and temporary, largely associated with progressive globalization intensified[3] due to the removal of territorial, communication and language barriers[4].

In the era of widely developed informatization of social life the role of the Internet is growing and it is no longer only a source of entertainment, but also a means of communication as well as knowledge and skills acquisition. Besides, more and more often the Internet is used for work, and sometimes it is the only work environment, as in the case of e-work.

People live faster and faster, using their intellectual abilities to a greater extent. They constantly migrate and the role of modern teleinformatic tools in their lives is growing. Ways of communicating, working, spending free time or learning are changing. Today, thanks to the Internet, the information which was several decades earlier accessible only to a very narrow group of people is now widely available.

The transformations in the sphere of human existence should be followed by an adequate change to the ways in which man is educated. As it is emphasized in the source literature, one of the biggest contemporary challenges in education is meeting the requirements imposed by the information society.[5]

Apart from traditional forms of teaching for the three centuries[6] there has existed so-called distance learning as a part of which, with the development of modern technologies in the second half of the 20th century, e-learning originated. It seems that it is exactly that form of education that is the most relevant to the contemporary challenges in education. The purpose of the present work is to provide information about the issues connected with educating by means of e-learning and on the basis of this answer the question about the benefits of using this method for teaching at the level of higher education and dangers are associated with it. In this chapter the author will not only refer to the source literature or analyze the legal regulations concerning distance learning, but he will also present his own experiences in preparing courses and teaching in the form of e-learning.

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[3] See e.g. S. Castles, M. Miller, *The Age of Migration*, London–New York, 2008.

[4] See G. Kościelniak, *Zmiany społeczne, gospodarcze i kulturowe w erze ponowoczesnej a ustrojowa przyszłość instytucji samorządu terytorialnego w Polsce*, Państwo i Społeczeństwo, ed. Jacek M. Majchrowski, No. 3, 2012, pp. 17–39.

[5] J. Bednarek, E. Lubina, *Kształcenie na odległość. Podstawy dydaktyki*, Warszawa 2008.

[6] See R. Lorens, *Nowe technologie w edukacji*, Warszawa – Bielsko–Biała 2011, p. 8.

WHAT IS E-LEARNING AND WHEN DID IT ORIGINATE?[7]

The starting point for giving answers to the questions in the introduction will be the presentation of the issues concerning e-learning as a form of education.

As mentioned earlier, e-learning is one of the forms of distance learning.[8]

Distance learning itself has a long tradition as its origins go back to the 18th century[9] when in the USA the press published information about correspondence courses (involving communication between students and lecturers was by mail).[10]

In Poland the tradition of distance learning is over two hundred years old. The Jagiellonian University was the first to introduce this form of instruction – in 1776.[11]

Another stage in the history of distance learning was the birth of educational television. Also in this case the USA was a pioneer – State Iowa University (1945).[12]

In Poland educational television as a form of education first appeared in the years 1966-1971, when the TV Polytechnic, which offered preparatory programmes for university candidates and other materials for students, existed.[13]

E-learning came into being as late as in the second half of the 20th century with the invention of new technological solutions enabling multimedia transfer, but first of all, at the time of the invention of the Internet.

J. Bednarek and E. Lubina are acknowledge the beginnings of e-learning date back to November 21st, 1969. On that day four American Universities – University of California in Santa Barbara, Stanford Research Institute, University of Utah, University of California in Los Angeles – were connected by network (ARPANET).[14]

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[7] This work will present e-learning related issues from the point of view of higher education, so the analysis of given topics will be conducted in the indicated context.

[8] Other forms of distance learning are e.g. correspondence education, using radio and TV in teaching – for more see R. Lorens, *op. cit.*, p. 84 ff.

[9] The source literature gives different dates of publication 1700 or 1728 – cf R. Lorens, *op. cit.*, p. 8; J.J. Czarkowski, *E-learning dladorosłych*, Warszawa 2012, p. 60 and S. Szabłowski, e-learning dlanauczycieli, Rzeszów 2011, p. 19.

[10] Eds. N. Siemieniuk, R. Mosdorf, *Wybrane zagadnienia wdrażania e-learningu w Szkole Wyższej na przykładzie WSFiZ w Białymstoku*, Białystok 2009, p. 7 ff.

[11] *Ibidem*, p. 8.

[12] J.J. Czarkowski, *E-learning dla dorosłych*, Warszawa 2012, p. 65; R. Lorens, *op. cit.*, p. 8.

[13] R. Lorens, *ibidem*, p. 8.

[14] J. Bednarek, E. Lubina, *Kształcenie na odległość. Podstawy dydaktyki*, Warszawa 2008, p. 123.

Nowadays, in developed countries distance learning is commonly used. For example, in the USA already in 2001 ninety percent universities offered students instruction by means of the Internet.[15]

In contrast, in Poland e-learning developed only in the years 2001– 2007.[16]

Distance learning is a broader term than e-learning. It encompasses e-learning, correspondence education, teaching by means of the radio and television.[17]

But as for distance education which uses information and communication technology and the Internet, two basic forms of instruction can be distinguished:

- e-learning – which in very general terms means total reliance on distance learning,
- b-learning (blended learning) – which combines distance learning with traditional learning; some of the issues related to a given subject are taught using distance learning, while others are taught in a traditional way during classes at university (school, class).[18]

However, in many works on distance learning the authors do not make this distinction and when discussing the method they use the term *e-learning* which encompasses both aforementioned forms. Such a generalization is justified provided that in a given work the question of form in which distance learning is realized is of minor importance.

Before defining the term *e-learning* first it must be noted that this term is often understood in different ways.

Sometimes e-learning is identified with any activities aimed at supporting educational process, using teleinformatic technologies[19] or with the use of 'the internet technologies in providing a wide range of solutions which extend knowledge and increase the effectiveness of teaching'[20].

R. Lorens gives a precise definition according to which 'e-learning is an educational process carried out using communication tools necessary for its realization, also using the Internet application by means of which the content of training is presented and which students use under the supervision of the teacher'.[21]

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[15] *Ibidem*, p. 99.

[16] Eds. N. Siemieniuk, R. Mosdorf, *op. cit.*, pp. 8–9.

[17] J. Bednarek, E. Lubina, *op. cit.*, p. 84.

[18] See J. Bednarek, E. Lubina, *op. cit.*, p. 118; M. Plebańska, E-*learning. Tajniki edukacji na odległość*, Warszawa 2011, pp. 20–23.

[19] Eds. N. Siemieniuk, R. Mosdorf, *op. cit.*, pp. 9–16.

[20] Citing J.J. Czarkowski, *op. cit.*, p. 51 – M.J. Rosenberg, *E-learning, Strategies for Delivering Knowledge in the Digital Age*, McGraw–Hill, Londyn 2003, p. 1.

[21] R. Lorens, *op. cit.*, p. 9.

On the other hand, S. Szabłowski, focusing on the form of transmission, says that 'e-learning is one of the forms of educating which uses all available electronic media including computer networks, satellite, television and radio broadcasting'.[22]

However, it seems that e-learning should not be identified solely with getting information on the Internet or using a computer in the teaching process.[23] Such a way of perceiving this form of education does not reflect its essence.

A. Clarce, focusing on the form of teaching and achieved goals, indicates that e-learning is a modern form of education which comprises a wide range of different techniques and methods of instruction. 'It combines (…) an independent acquisition of knowledge using available technologies and traditional methods in which a student gains knowledge from a teacher.'[24]

A. Siemińska-Łasko or J.J. Czarkowskiprovidea comprehensive definition of e-learning. According to A. Siemińska-Łasko 'e-learning is seen as distance learning by means of electronic media. It is an interactive form of learning and teaching which uses the state-of-the-art developments in information technology and the transmission of taught issues and other information is conducted mainly through the Internet and LAN computer networks, often with the use of audio-video materials and CDs'.[25]

On the other hand, J.J. Czarkowski claims that 'e-learning is a way of transferring knowledge (often but not always remotely) based on Information Technology, particularly the Internet-related. E-learning training is carried out online, both in the internal network of the training institution (intranet) as well as by means of the external network (Internet). They include knowledge transmission, control of the process and feedback on the extent to which knowledge has been acquired'.[26]

As M. Tanaś observes, e-learning as a form of distance learning is polisensory, multimedia-based, interactive, simulatory, communicative and virtual in character.[27]

On the whole, e-learning is a form of distance learning which offers opportunities for teaching but also for self-study, uses the most modern telein-

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[22] S. Szabłowski, *E-learning dla nauczycieli*, Rzeszów 2011, p. 12.

[23] See J. Bednarek, E. Lubina, *op. cit.*, p. 85 ff.

[24] A. Clarce, *E-learning. Nauka na odległość*, Warszawa 2004, p. 9.

[25] A. Siemińska-Łasko, *Interakcje w e-learningu*, [w:] *Nowe Technologie w kształceniu na odległość*, Materiały Konferencyjne, II Krajowa Konferencja Naukowa, Koszalin – Osieki 2006, p. 147.

[26] J.J. Czarkowski, *op. cit.*, p. 53.

[27] M. Tanaś, *Pedagogika @środki informatyczne i media*, Warszawa–Kraków 2004.

formatic tools, the Internet, enables teaching with the use of a wide range of didactic methods, in the synchronous and asynchronous mode, is interactive and polisensory in character (engages both vision and hearing), develops abilities to communicate by means of the most recent developments of modern technology.

E-LEARNING OR A TRADITIONAL FORM OF TEACHING?

Being aware of what e-learning is, one must now answer the question concerning the influence of this form of education on the level of education.

The analysis of this issue should be conducted by comparing e-learning with a traditional form of teaching, and the starting point should be the enumeration of the advantages as well as disadvantages that are associated with using this form of teaching and learning, of course in the context of traditional teaching. In the source literature, because of different criteria, both subjective and objective, the advantages and disadvantages of e-learning are classified in diverse ways.[28] In this paper the presented analysis will be very general and will focus on the effectiveness of the teaching process at the level of higher education.[29]

The main advantages of e-learning are as follows:

- easiness to monitor the teaching process and students' progress,
- possibility to transfer the knowledge through two sensory channels – visual and auditory,
- individualization of the educational process thanks to which the pace of knowledge transmission and skills acquisition can be adjusted to students' individual needs and possibilities,
- fast knowledge transfer,
- randomness of time and place as regards information access,
- development of the ability to organize work,
- development of the ability learn systematically,
- possibility of constant student-teacher interaction (synchronous and asynchronous tools),
- possibility of using the latest developments in information and communication technologies,

[28] See: J. Bednarek, E. Lubina, *op. cit.*; M. Hyla, *Przewodnik po e-learningu*, Kraków 2005; M. Kocójowa, *Edukacja na odległość. Nowe technologie w informacji i bibliotekarstwie,* [w:] *Społeczeństwo wiedzy i wirtualna edukacja*, (red.) H.K. Achleitner, Kraków 2003; R. Lorens, *op. cit.*; N. Siemieniuk, R. Mosdorf, *op. cit.*; A. Stecyk, *ABC eLearningu*, Warszawa 2008.

[29] Cf *Ibidem*.

- development of IT skills,
- possibility of reusing didactic materials,
- ease of use of multimedia didactic tools,
- preparation for e-work.

Besides, e-learning is not only less time-consuming (from the student's point of view), but it is also less expensive.

Speaking of the advantages of e-learning one must point out citing after J. Bednarek that this form of learning and teaching enables breaking down linguistic, cultural and mental barriers in the case of individuals for whom traditional education was for different reasons hindered.[30]

Obviously, apart from numerous advantages e-learning also has disadvantages such as:

- hindered student-student interaction, reduced emotional bond between them, reduced degree of interactions between students, which can negatively affect the development of their social skills,
- limited access to knowledge in the case of computer illiteracy,
- limited teacher-student interaction,
- limited possibility of using this form of education in the case of some disciplines, e.g. medicine,
- influence of technical specifications of used educational platform on the level of teaching,
- limited possibilities of motivating a student,
- high cost in terms of time and money of preparation of an e-learning course,
- necessity of having software which allows creating and using e-learning courses.

Moreover, another weak point of e-learning is a problem with students' internal motivation and self-discipline.

However, it must be noted that modern learning platforms enable eliminating most of the drawbacks enumerated above. They allow using diverse methods of teaching which allow achieving different didactic goals.[31]

Thus, the quality of e-learning education depends on the learning platform used, and (or predominantly) on the teacher – the author of the course.

Using e-learning in teaching one must take into consideration the way the addressees of this method, i.e. students, evaluated it. The research conducted at the Academy of Science and Management in Białystok in the 2008/2009 academic year using a sample of a hundred students is a good example. According to the respondents the main advantages of the form of teaching in question are as follows:

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[30] J. Bednarek, *Multimedia w kształceniu*, Warszawa 2007.

[31] See: J. Bednarek, E. Lubina, *op. cit.*, pp. 129–181.

- possibility of learning in any place (34,0),[32]
- possibility of learning with the pace, schedule and in the way set individually (18,2),
- lower stress level in comparison with the classes taught in a traditional way (11,0),
- chance for students to learn to be systematic and self-disciplined as e-learning requires from students more regular work (8,8),
- easy and fast way of communicating with other students and the person teaching the course (6,3).
- Some of the main disadvantages as seen by the respondents are:
- difficulties planning one's own work and the requirement for systematic learning (21,3),
- loss of teacher's contact with students (18,5),
- disappearance of motivation (15,5),
- difficulties operating the platform (9,7),
- difficulties with participation in group discussions (9,2),
- isolation, loneliness (2,7).

The outcomes of the quoted research to a large extent coincide with the earlier assumptions concerning the opportunities and dangers connected with e-learning. It must be noted that the biggest advantage of e-learning is individualization of the learning process whose purpose is not only the acquisition of knowledge and skills typical of a given subject, but also the development of creativity, systematic work, self-discipline or the ability to work independently. According to the respondents, at the same time this is the biggest difficulty when using this form of teaching. Thus it can be implied that on the one hand, students consider gaining the skills mentioned above truly important, but on the other hand, they fear that they may lose motivation to learn as well as the ability to work independently.

Drawing a comparison between e-learning and traditional education the respondents indicated that:

- this form hinders the expression of controversial views (46%),
- teacher's relations with students become more factual in comparison with traditional classes (65%),
- level of motivation for active participation in classes decreases (58%),
- this form restricts cooperation between students (69%),
- emotional bond between students and teachers weakens (79%).

[32] The respondents selected three out of eight options of responses, arranging them in the order of importance. Thus the results in parentheses are the weighted average numbers.

The analysis of the results presented above fully confirms the assumptions made in the introduction that the biggest benefit of e-learning as a form of teaching at the higher education level is the individualization of the learning process as a consequence of which students gain additional skills, but at the same time it entails the loss of student-student interaction, student-teacher interaction and decline in motivation for work.

However, I believe that the disadvantages of e-learning can be eliminated.

A way of facilitating communication process both between the course participants as well as between the teacher and the course participants is e.g. using message boards, chats, contacting via e-mail. Problems with students' motivation may be eliminated by an appropriately prepared e-learning course. It should include not only the most significant information which a student is obliged to learn, but it should also clearly define the goals of a given course – knowledge, skills and competence a student will have gained after completing the course. If it is enriched with numerous practical examples, 'tidbits', students will definitely feel encouraged to use this form of learning. Awakening students' interest in the presented issues, defining practical skills they will acquire will motivate them in a natural way to work systematically using e-learning platforms.

Another means of increasing students' level of motivation can be the creation of tools enabling self-assessment – interactive tasks and exercises available online whose correct answers can be seen once the tasks have been completed.

Yet another factor that may increase students' systematic approach to self-education and motivate them to work may be assigning them some tasks to complete in a certain period of time, e.g. during the course they are obliged to do some tasks for which shorter deadlines are set. Another thing that increases students' motivation is the establishment of clear and accurate correlation between the fact of completing the e-learning course and the final grade in a given subject. An effective measure to implement this goal is creating an online test for students to do after they complete the course (or course module tests) and next, incorporating its result in the final mark in a given subject. One can decide that achieving eighty percent of correct answers to the test questions with be taken into account in deciding on the final mark in a given subject, resulting in raising it e.g. by half a mark and by analogy in the case of the students who did not do the course, the mark would be lowered. Obviously, these rules must be presented to students before the course begins. It may happen that a student will not complete the course due to technical problems beyond the control of the student. But with the appropriate way of communicating between the teacher and students (e.g. by means of the tools not connected with the learning platform), the problem can be easily overcome.

Using the methods described above enables the elimination of basic dangers without any harm to the benefits of this form of education.

In the final stage of the presented research the respondents answered the questions about their preferences concerning learning in a traditional way and by means of e-learning. Twenty-eight percent of the respondents would not reject e-learning, fifty-six percent opted for combining the two forms, twelve percent chose e-learning as one of the main forms and only two per cent would accept e-learning as the only form of education.

These results confirm the claim of the author of this work that e-learning is treated as a form enriching an array of methods applied in educational process seems to be truly desirable. The total elimination of traditional methods of teaching in favour of e-learning is not acceptable at the level of higher education. Obviously, a lot depends on what field of science e-learning will be used for.

While discussing the issue of the advantages and disadvantages of e-learning it seems reasonable to make a dychotomic division into students of full-time and part-time studies.[33] This division is justified by the differences resulting from the peculiarity of adult education.

The quoted research outcomes show that one of the biggest shortcomings of distance learning is learners' low level of motivation. The author's own work experience as a university teacher allows formulating a thesis that in the case of students of part-time studies, lack of motivation is observed less frequently, which also concerns their attitude to e-learning. People who are adults, who work and who often play many roles in their lives are firstly in most cases not only aware of the goals they want to reach, but what is more, the number of everyday duties and chronic lack of time resulting from it does not give 'the comfort of having low level of motivation for work'. Secondly, these people have already gained the ability to manage their time and work. Thirdly, all the factors enumerated above make e-learning a favourable form of learning as it enables learning at any time and in any place.

Searching for the answers to the questions raised in the introduction, one may formulate a subsidiary question – what is the future of e-learning?

According to United Nations Development Programme, it is postulated that today education, in response to the needs of developing the information society, should to a large extent use the Internet thanks to which man acquires the ability to use teleinformatics tools and formulate own informa-

[33] See Art. 258 in conjunction with Art.2 para.1 subpara. 12–13 of Act of July 27th, 2005 – Law on Higher Education (Journal of Laws i.e. 2012, item 572 as amended) – continued in Law on Higher Education.

tional needs[34]. For that reason e-learning is a form of education which best fulfills the above assumption.

In the source literature it is stressed that nowadays owing to the very dynamic transformations which concern all spheres of life, education cannot go without distance learning to fulfill its roles'.[35]

W. Strykowski emphasizes that nowadays it becomes necessary to get involved in 'the educational processes of the mass media and the latest information technology tools with the dominant role of the Internet'.[36]

As J. Bednarek and E. Lubina note distance learning should be treated as an experiment or solely as a way of making traditional methods more attractive. To some extent e-learning is becoming an essential condition to make education comply with the demands of modern society – the knowledge society. What is more, 'the need to gain knowledge all one's life will cause distance learning to be more and more common. (…) Social networks participation is an element of everyday and professional life. The ability to act effectively in the changing world should be developed by adjusting forms of work with young generation to the technological and civilizational advancement'.[37] Besides, the authors emphasize that distance learning is directed at 'all social and professional groups and also all levels and fields of education'.[38]

The fact that the process of social communication which relies on technical solutions utilizing constantly developing communication technology has undergone considerable changes recently is not without significance. Communicating over the Internet supersedes other, traditional ways of communicating. Social networks, communicators are more and more often the main source of communicating, a centre of social life.

Thus it seems that e-learning as a form of teaching using the Internet will be gaining more and more importance superseding traditional methods of teaching.

Apart from being behaviorist in character distance learning is also constructivist and thus it is conducive to students' self-development. Therefore, e-learning has yet another advantage over traditional methods – it prepares for life in the information society. Apart from that – as it is stressed in the

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[34] W. Abramowicz, W. Gogołka, J. Stokłosa, M. Sysło, [w:] *Polska w drodze do globalnego społeczeństwa informacyjnego [raport o rozwoju społecznym]*, (red.) W. Cellary, Warszawa 2002, pp. 121–135.

[35] See M. Plebańska, *op. cit.*

[36] W. Strykowski, *Media i edukacja medialna w tworzeniu współczesnego społeczeństwa,* [w:] W. Strykowski, W. Skrzydlewski (red.), *Media i edukacja w dobie integracji*, Poznań 2002 – citing J. Bednarek, E. Lubina, *op. cit.*, p. 17.

[37] J. Bednarek, E. Lubina, *op. cit.*, p. 7.

[38] *Ibidem*, p. 17.

source literature – distance learning fosters the development of social competence which is necessary to function in the information society.[39]

The answer to the question in the introduction of this work whether e-learning is a chance or a threat for increasing the level of students' knowledge, skills and competence is that it depends on the competence of the teacher himself/herself – the author of the course.[40]

On the whole, a skilful preparation of an e-learning course[41]which fully uses the opportunities offered by contemporary educational platforms (video conferences, chats, message boards, different kinds of interactive materials, scans of source materials, links to other websites, use of diverse didactic graphic, sound, audiovisual materials) in conjunction with a traditional form of teaching which guarantees personal contact between a student and a teacher, seems to be the most effective form of education.

Therefore as far as I am concerned, the optimal solution considering the level of education among other aspects is the use of blended learning.[42] It seems that combining a traditional form of teaching and distance learning which uses contemporary technical and informational resources and the possibilities offered by the Internet is aimed at not only increasing the level of education thanks to the use of numerous diverse didactic tools but apart from that it is a far more interesting method of gaining knowledge and abilities. Thus blended learning combines the advantages of a traditional form of teaching and distance learning. In addition, it eliminates most of the negative aspects of distance learning. Firstly, it does not deprive a student of a personal contact with the teacher or a contact between students themselves. Consequently, they do not feel alienated, they do not lose an emotional bond that unites them and what follows from that is the fact that this form of teaching does not develop antisocial attitudes, because students have a chance to communicate with one other both during their traditional classes and through message boards of the learning platform. Secondly, it enables the lecturer to use additional methods of motivating students when they have a personal contact. Thirdly, in the case of this form of teaching the problem of students' lack of infrastructure can be easily overcome, because a student coming to traditional classes at university will have a chance to use university IT infrastructure.

Using all possibilities of distance learning ensured by modern technology offers great chances that e-learning will not lower the level of education, but

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[39] *Ibidem*, p. 167.

[40] Standards of distance learning were laid down by e.g. the Polish Virtual University.

[41] See also *ibidem*, pp. 129–181.

[42] See also J. Bednarek, E. Lubina, *op. cit.*, p. 131.

it will raise it considerably. 'Distance learning, stressing the aspect of independence, searching for knowledge in worldwide resources is a good way of achieving the goal which is educating an individual keen to further his/her education.[43]

CONCLUSIONS

The above analysis led to very interesting conclusions – the question concerning the effectiveness of distance learning should be replaced with the question whether today, in the age of social, economic and cultural transformations, it is possible to educate at a university level disregarding e-learning education. The answer is negative. Because of the 'informatization' of the contemporary life a university graduate will not be able to cope on the job market without the ability to function in this new reality. Therefore education must keep pace with the contemporary world and educate in such a way so that students will meet the requirements of the job market. Obviously, there is a risk that higher education will change into vocational education that will prepare only and exclusively for doing a given job. However, one cannot forget that the reform of higher education initiated by the Bologna Process is based on the ideas of lifelong learning, learning one's entire life and thus the role of a teacher is also to instill in a student 'love for learning', so well known to them. I believe that a well-educated educator who can use different didactic methods, including the ones that the development of civilization brings every day [44], is able to teach in the way that will comply with the above-mentioned assumptions.

What is more, it seems that the idea of lifelong learning calls for the learning mobility. University graduates who work and who play different roles in their lives have and will always have very limited amount of time. Another obstacle to learning for them can be hindered mobility. Therefore, distance learning offers a realistic chance to put the above idea into practice without any harm to the quality of education, as the conducted research proved.[45]

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[43] *Ibidem*, p. 214.

[44] M-learning i.e. distance learning using mobile devices e.g. laptops, palmtops, tablets, mobile phones; also referred to as mobile learning.

[45] However, it can be observed that the academic environment does not seem to be interested in this form of education – see J.M. Mischke, *Przeszkody, powodyiutraconekorzyści. E-nauczanie w polskich szkołach wyższych,* [w:] *E-edukacja – analiza dokonań i perspektyw rozwoju*, (red.) M. Dąbrowski, M. Zając, Warszawa 2009, pp. 19–24.

E-LEARNING AN APPROPRIATE FORM OF ACADEMIC INSTRUCTION ON THE BASIS OF TEACHING CONSTITUTIONAL LAW?

Grzegorz Kościelniak

Abstract

E-learning is one of dynamically developing forms of education. It seems that in spite of the fact that the origins of this form of education go back to the 18th century and distance learning, which is one of its types and which uses technological tools that enable multimedia transfer, originated in 1969, it does not cease to be an innovative method – at least in Poland. What is more, this form of education does not seem to enjoy great popularity,[1] at the level of higher education, which in my opinion is not good.

Therefore, one may ask whether this form of teaching can be used effectively in teaching Constitutional Law. Searching for an answer to this question, the author will also try to answer some subsidiary questions: firstly, what legal regulations in Poland determine the rules of using e-learning in education? Secondly, is distance learning in keeping with the goals of the reform of higher education and to what extent can it be an effective way of implementing the principles of the National Qualifications Framework? In this chapter the author will refer to the source literature and analyze legal regulations concerning distance learning. In addition, he will also draw upon his own experiences in preparing courses and teaching classes in the e-learning form.

Key words: e-learning, legal basis for distance learning, e-learning in keeping with the goals of the reform of higher education, the National Qualifications Networks and e-learning, e-leaning as a form of teaching Constitutional Law, e-learning and educational outcomes in relation to knowledge, skills and social competence.

INTRODUCTION

E-learning is one of dynamically developing forms of education. It seems that in spite of the fact that the origins of this form of education go back to the 18th century and distance learning, which is one of its types and which

[1] However, a change in this trend is observed, the establishment of the Association of Academic E-learning in 2006 testifies to it.

uses technological tools that enable multimedia transfer, originated in 1969, it does not cease to be an innovative method – at least in Poland. What is more, this form of education does not seem to enjoy great popularity,[2] at the level of higher education, which in my opinion is not good.

Therefore, one may ask whether this form of teaching can be used effectively in teaching Constitutional Law. Searching for an answer to this question, the author will also try to answer some subsidiary questions: firstly, what legal regulations in Poland determine the rules of using e-learning in education? The question about the effectiveness of this method must be preceded by the question about its admissibility in the light of the Polish legal standards. Secondly, is distance learning in keeping with the goals of the reform of higher education and to what extent can it be an effective way of implementing the principles of the National Qualifications Framework? The second subsidiary question is justified in so far as the negative answer to this question renders further analysis completely futile. To be exact, the answers to two subsidiary questions are strictly interrelated and serve to provide an answer to the essential question in this work. In this chapter the author will refer to the source literature and analyze legal regulations concerning distance learning. In addition, he will also draw upon his own experiences in preparing courses and teaching classes in the e-learning form.

LEGAL BASIS FOR DISTANCE LEARNING

The first legislative act in Poland which in detail defines the rules connected with e-learning was the regulation of the Minister of Education and Science of February 3rd, 2006 on the acquisition and broadening of general knowledge, skills and professional or vocational qualifications by adults in non-school settings.[3]

The legal basis for the use of the above-mentioned form of instruction at the level of higher education was established already in 2005[4], but it contained only a general principle, which was not sufficient to allow its practical application. According to Article 164, paragraph 3 of this Act 'didactic process at the level of higher education can be conducted using distance learning methods and techniques'. Yet the conditions that had to be fulfilled so that classes could be conducted in the above-mentioned form were to be

[2] However, a change in this trend is observed, the establishment of the Association of Academic E-learning in 2006 testifies to it.

[3] „Journal of Laws of 2006", No. 31, item 216.

[4] Act of July 27th, 2005 – Law on Higher Education („Journal of Laws of 2012", item 572 as amended) – continued in Law on Higher Education.

determined by the regulation of the Minister of Science and Higher Education.

This regulation was published on October 25th, 2007 [5] and it described in detail the rules of conducting e-classes.

In the light of the normative act (§ 1) 'classes can be conducted using methods and techniques of distance learning in teaching all fields of study taking into account their characteristics, at all levels of full-time and part-time studies'. However, a higher education institution which wants to teach classes in this form must fulfill the following conditions:

- 'have the faculty of academic teachers who are prepared to teach classes using methods and techniques of distance learning,
- ensure access to IT infrastructure and software which enable synchronous and asynchronous interaction between students and academic teachers,
- provide didactic materials developed in an electronic form,
- ensure that each student will have an opportunity of personal consultations with the lecturer on the school premises,
- ensure ongoing monitoring of students' progress, verification of knowledge and skills also through organizing tests and exams on the school premises at the end of the course in a given subject,
- ensure ongoing monitoring of the involvement of teachers[6],
- conduct verification of knowledge and skills of students' who use distance learning in the way which ensures the fulfillment of requirements defined in education standards for given faculties and levels of study [7],
- organize a series of trainings preparing students to use this form of education.[8]

Besides, the above regulation determined the number of classes conducted using methods and techniques of distance learning. Unfortunately, the legislator was not consistent in this matter – since its implementation this regulation has been modified several times with regard to this issue.

Originally, the total number of hours of distance learning within the overall number of didactic hours determined in the education standards for given faculties and levels of education excluding practical and labora-

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[5] Regulation of the Minister of Science and Higher Education of September 25th, 2007 on conditions which must be fulfilled to conduct university classes using distance learning methods and techniques („Journal of Laws of 2007", No. 188, item 1347).

[6] § 2 subpara, 1–6 of this regulation.

[7] §4 of this regulation.

[8] § 3 of this regulation.

tory classes, in the case of part-time as well as full-time studies, was not bigger than:

- eighty percent in the case of university divisions which are entitled to confer the academic title of Assistant Professor (the degree of*doktorhabilitowany*),
- sixty percent in the case of university divisions which are entitled to confer the academic title of PhD,
- forty percent in the case of other university divisions.[9]

However, already a month following passing of this law time schedule of classes which can be taught using distance learning methods and techniques in the case of universities which had classes for students in non-European countries changed to maximum seventy percent in the case of all university divisions.[10]

Another modification of time schedule of classes which can be taught using distance learning methods and techniques was introduced on May 9th, 2008.[11] The regulation determined uniformly admissible time schedule in the case of all university divisions. At present, it constitutes sixty percent of the overall study time. At the same time the legislator decided not to distinguish the legal status of the universities which conducted classes for students staying in non-European countries.

The last change of distance learning principles was in[12] in connection with the introduction of the reform of higher education. The reason for this modification was to incorporate the National Qualifications Framework in distance learning.

The obligations formerly imposed on universities were modified:

- ensuring verification of not only knowledge and skills as until now but also of social competence by organizing tests and exams in a given subject at the end of the course on the school premises,
- conducting verification of students' knowledge, skills and social competence in the way which allows for the comparison between the assumed learning outcomes and the achieved ones (until now uni-

[9] § 5 of this Regulation.

[10] Regulation of the Minister of Science and Higher Education of 31st October, 2007 amending the regulation on conditions which must be fulfilled to conduct university classes using distance learning methods and techniques („Journal of Laws of 2007", No 208, Item 1506).

[11] Regulation of the Minister of Science and Higher Education of May 9th, 2008 amending the regulation on conditions which must be fulfilled to conduct classes at university using distance learning methods and techniques („Journal of Laws 2008", No 90, Item 551).

[12] Regulation of the Minister of Science and Higher Education of November 2nd, 2011 amending the regulation on conditions which must be fulfilled to conduct university classes using distance learning methods and techniques („Journal of Laws" 2011, No. 246, Item 1470).

versities were obliged to verify solely knowledge and skills and not social competence of students who took distance learning courses in the way ensuring the fulfillment of the requirements defined in the education standards for given faculties and levels of education).

Another very significant alteration was introduced through the regulation from 2011 which extended the possibilities of using distance learning for practical classes – earlier e-learning could not be used in the case of such classes at all. At present teaching aimed at students' acquisition of practical skills should be held in the natural setting – e.g. there should be laboratory classes, field classes, and workshops. These classes require the participation of academic teachers and students, but distance learning methods and techniques, including virtual laboratories, can play a complementary role.[13]

Taking everything into consideration, it must be stated that the legislator determined only the basic conditions that have to be fulfilled in the case of distance learning leaving details concerning organization or the use of this form of instruction for universities to regulate. Considering the autonomy of these institutions such a decision seems to be a good solution.[14]

The analysis of the legislator's decisions leads to the conclusion that the only accepted form of remote education at the level of higher education is blended learning.

THE NATIONAL QUALIFICATIONS NETWORKS AND E-LEARNING

The purpose of establishing the National Qualifications Framework[15] (hereinafter referred to as NQF) is the implementation of the recommendation of the European Parliament and the European Council of April 23rd, 2008 on establishing the European Qualifications Framework for lifelong learning (hereinafter referred to as EQF)[16] and to a certain extent it is another stage of the reform of higher education which was initiated as a part of the so-called Bologna Process.[17] The basis for this reform is launching of the European

[13] *Ibidem*.

[14] See Art. 4 item 1, Law on Higher Education.

[15] See Regulation of the Minister of Science and Higher Education of October, 2nd, 2011 on the National Qualifications Framework for Higher Education („Journal of Laws" 2011, No 253, item 1520).

[16] Recommendation of the European Parliament and Council of April 23rd, 2008 on the establishment of the European Qualifications Framework for lifelong learning (OJ EU 2008/ C 111/01).

17 More: E. Kula, M. Pękowska, *Europejski obszar szkolnictwa wyższego. Antologiadokumentów i materiałów*, Kielce 2006.

Higher Education Area based on the idea of lifelong learning and the idea of equal opportunities in the knowledge-based society. Creating a common educational space calls for, inter alia, a continuous increase in students' and lecturers' mobility and development of the idea of lifelong learning.[18]

E-education, which guarantees mobility of knowledge, appears to be an effective measure which serves to realize these objectives.[19] Thus, will educational systems based on new technologies which enable distance learning be able to meet new challenges?

Nowadays, the acquisition of necessary knowledge is not the only objective of higher education. Gaining abilities and social competence (being a novelty) is as important. It is of great significance that teaching at the level of higher education should translate to specific educational outcomes achieved in these three categories.

Hence, while searching for an answer to the question about the extent to which e-learning is an educational method which serves to realize the NQF, it is necessary to answer the question whether distance learning enables a student to achieve the same learning outcomes as traditional education.

Considering the disparities in learning outcomes set for given areas of knowledge and fields of science,[20], the analysis will be conducted only with reference to the outcomes set for social sciences (which include law which is one of academic disciplines).

I presume that a well-prepared e-learning course placed on the 'modern' learning platform guarantees that the educational process will ensure the same level of achievement as far as learning outcomes go as the traditional education.

However, the achievement of desired learning outcomes set in the NQF in the area of skills is not so obvious in the case of distance learning.

The task that a university has to deal with (concerning enabling access to a suitable learning platform) and a teacher's role are much more difficult, which yet does not mean that they are impossible to realize.

For instance, a person who according to S2A_U10 has qualifications of the second degree should be highly skilled in giving presentations on the topics adequate for the field and discipline of science he/she studies. Undoubtedly, achieving of this goal will be possible only if personal contact of

[18] These objectives were set in the EQF.

[19] Seealso: K. Denek, *Poza ławką szkolną*, Poznań 2002; J. Gajda, *Europejskość jako wyzwanie edukacyjne dla ambiwalentnej roli mediów w procesie integracji europejskiej,* [w:] *Media i edukacja w dobie integracji*, W. Strykowski, W. Skrzydlewski (red.), Poznań 2002.

[20] Regulation of the Minister of Science and Higher Education of August 8th, 2011 on areas of knowledge, fields of science and art and scientific and artistic disciplines („Journal of Laws" 2011, No 179, item 1065).

a student and teacher will be ensured. But thanks to the possibilities offered by modern educational platforms it is feasible also in the absence of personal contact. A lecturer using distance learning should just organize office hours in the form of a videoconference for students. Naturally, putting this idea into practice is possible on condition that adequate technical infrastructure will be available not only for a teacher, but also for a student, which sometimes may be a serious constraint.

Another example concerns the achievement of the S2A_U09 learning outcome, according to which a graduate should be highly skilled in writing different texts. This requirement can be fulfilled by regularly assigning students writing tasks using message boards on the learning platform.

Proceeding to analyze the last area of educational outcomes it must be noted that among the tools offered by some e-learning platforms (including the platform of A. F. Modrzewski Krakow University[21]) there are the ones which enable the development of the communication ability using modern technology – message boards, chats, e-mail, videoconference. Thanks to it, students acquire skills also in the area of social competence. They learn virtual environment teamwork assuming different roles. These skills will be very useful in their future professional work and at the same time they translate into the learning outcomes defined in the area of social competence (S2A_K02).

Moreover, e-learning is based on students' independent work and therefore, thanks to this form of teaching, they will be able to a greater extent to 'develop their knowledge and skills on their own, being capable of critical evaluation'[22] (S2A_K06).

Distance learning is characterized by a high degree of the individualization of the teaching process. One of its good points is the development of the ability to learn systematically, and self-discipline. Students also gain the ability to manage their time and work and at the same time thanks to it, they become more creative, resourceful, responsible and able to work independently.

Therefore, it seems that distance learning serves the purpose of achieving some goals which are in the sphere of social competence defined in the NQF better than traditional forms of teaching.

To sum up, the above analysis justifies the thesis that teaching through e-learning may lead to the achievement of the educational outcomes set in the NQF. The research has also confirmed that the best form of education is b-learning.

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[21] http://elearning–ka.edu.pl, July 24th, 2013.

[22] Regulation of the NQF.

E-LEANING AS A FORM OF TEACHING CONSTITUTIONAL LAW

The above analysis leads to the general conclusion that e-learning is a form of higher level education which complies with legal requirements and educational outcomes defined in the NQF.

Yet the question remains unanswered as to the validity of the above-formulated statement in the case of teaching Constitutional Law.

In connection with the reform of higher education and the introduction of the NQF associated with it, since the 2012/2013 academic year a few changes have been made to the teaching of Constitutional Law. These changes are reflected in the new syllabus for teaching of this subject, which was prepared in the Department of Constitutional Law of A. F. Modrzewski Krakow University. Therefore, in this part of the work I will try to provide the answer to the question about the extent to which e-learning can be an effective method of teaching Constitutional Law from the point of view of the new standards of teaching set forth in the syllabus. Does e-learning enable a student to achieve the same educational outcomes in relation to knowledge, skills and social competence as traditional teaching?

Another important fact is that the introduction of the new syllabus for this subject coincided with the beginning of teaching in the form of e-learning (altogether nine courses had been created). Thus this method has already been used for two years and a few hundred students have used it. Therefore, it is justified to evaluate its effectiveness e.g. relevance to the defined outcomes concerning the curriculum content, teaching methods and an approach to verification of knowledge, skills and competence acquired by students.

Educational outcomes were described in the syllabus in the following categories: skills (five outcomes), knowledge (two outcomes), social competence (one outcome).

Consistently with the educational outcomes for a module concerning skills, after completing a course in Constitutional Law a student should know how to:

- use conceptual framework regarding law and use it freely, use theoretical knowledge to analyze and interpret social problems (the first outcome),
- use the knowledge of political and legal doctrines, analyze and interpret doctrinal sources of political and legal institutions; expound the solutions of the existing legal system in the context of their doctrinal grounds (the second outcome),
- perform independently legal qualification of a factual state, expound and apply in practice rules of law of different areas of law (the third outcome),

- understand social and political mechanisms which determine law, predict consequences of normative regulations (the fourth outcome),
- analyze judicial decisions and views of renowned authorities expressed in commentaries and research works (the fifth outcome).

As for the expected educational outcomes in the category of knowledge, a student should:

- have an extended and structured knowledge of key regulations in the area of Constitutional Law, particularly the ones concerning constitutional rules which determine the functioning of the State, documents and ways to guarantee human rights and citizen rights and satisfy social needs, ways to create the law, hierarchy of sources of law, and also competence and mutual relations between the organs of government,
- define and describe organs and institutions of legal protection, know their social significance.

What is more, a student who has completed a course in Constitutional Law should develop an interest in the issues of legislative policy, understand the necessity of continuous monitoring of changes in legislature and jurisdiction and with respect to that be able to formulate postulates *de legalata* and *de legeferenda* – this is an educational outcome in the field of social communication.

The courses included the discussion of the indicated issues, which were illustrated with examples, schemes, source materials and interactive exercises.

Thanks to the possibilities offered by the educational platform of J. F. ModrzewskiKraków University the following teaching methods can be used in an e-learning course: an introductory lecture, multimedia presentations, brainstorming, group work, problem-solving sessions, case studies or even a discussion. Thus a well-prepared e-learning course allows e.g. using interactive exercises such as a quiz or a crossword, solving a case, a source text analysis – e.g. judicial decisions of the Constitutional Tribunal, the Supreme Court – which are attached on the platform.

Moreover, the platform enables using huge knowledge resources on the Internet, of course on condition that all requirements connected with the copyright law will be fulfilled.

For example, one of the courses placed on the platform concerned the issues related to the forms of direct democracy such as the „cantonal assembly" *(Landsgemeinde)*. One of very few countries where this form of direct democracy exists at present is Switzerland. Thanks to the platform, it was possible to add a link to the official website of one of the Swiss cantons, on

which a video of such a gathering was placed. Traditional classes for obvious reasons do not offer such possibilities.

As for the reliable tools for the verification of knowledge, skills and competence acquired by students, these are tests conducted online and during teachers' personal encounters with students, solving problem activities based on cases and the analysis of judicial decisions. The analysis of judicial decisions and problem-solving activities were mainly undertaken during traditional classes, but it comprised the issues presented during distance learning classes.

The analysis of the experience of conducting nine e-learning courses in which a few hundred students participated leads to the conclusion that the achievement of module educational outcomes in the acquisition of knowledge, skills and social competence is fully possible when using e-learning education. Students' final results showed a comparable degree of effectiveness of distance education and traditional education.

Yet it must be stressed that according to the syllabus for the subject not all educational outcomes were to be achieved through e-learning.

The outcomes that could be most easily realized by means of distance learning were naturally the outcomes related to and defined in the category of knowledge. A detailed analysis of the outcomes in this category set in the syllabus and achieved by students revealed the effectiveness of this form of teaching.

In general, the achievement of educational outcomes related to the category of skills was not problematic, but it must be stated that as in the case of the above category not all outcomes were to be achieved through distance learning.

The biggest problems were connected with educational outcomes in the field of social competence. Yet, it is not due to the difficulty with the realization, but because of the difficulty with the verification of the degree to which they have been achieved by means of distance learning. The most effective means of verification proved to be a direct conversation with students during traditional classes as part of problem-solving activities. It can be added that the educational platform enables academic office hours via videoconferencing, but it did not happen due to problems with students' technical infrastructure.

All things considered, it must be stated that in the case of Constitutional Law e-learning can be an effective method of teaching considering new educational standards set in the syllabus for the subject. These conclusions seem to be reasonable as they are not purely theoretical since they were supported with own experience in teaching in both the traditional form and using e-learning.

Conversations with students showed a vivid interest in this form of instruction, especially among part-time students. The individualization of the teaching process enabled students to adjust the pace of knowledge acquisition to their own learning abilities and ensured mastery of presented issues, which was confirmed by the results of tests done online as well as the results of cases and final tests in the traditional form.

Therefore, it must be stated that e-learning proved to be an effective form of teaching which serves the purpose of the acquisition by students of adequate knowledge, skills and social competence.

CONCLUSIONS

The results of the above analysis fully justify the statement that e-learning is a complementary method of teaching Constitutional Law.

Combining this method with traditional teaching enables the achievement of the best results, which fully confirms earlier assumptions.

Certain difficulties connected with meeting some educational objectives using e-learning may be fully compensated for during traditional classes. Yet I believe that in spite of the fact that e-learning can satisfy all standards of teaching Constitutional Law, it will not replace a student's face-to-face contact with the teacher. As I see it, using videoconferencing for the purpose of classes will not build such strong relations as direct contact.

Therefore, considering all advantages and disadvantages of distance learning, it must be stated that b-learning is the best form of education for teaching Constitutional Law.

LEARNER MODELLING FOR ENHANCED TEACHING OF JAVA PROGRAMMING BASICS

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Abstract

Personalisation of the e-learning systems represents the adjustment of the available content and form of teaching materials that are presented to the learner in the learning process. There are different types of personalisation in the form of text adjustment, page selection or choice of different forms of lessons. Personalisation in e-learning systems is performed based on data from the learner model, which is collected through user sessions. In this paper we presented an adaptive and intelligent web-based PRogrammingTUtoring System – Protus 2.1. One of the most important features of Protus 2.1 is the adaptation of the presentation and navigation through a course material based on particular learner knowledge. System aims at automatically guiding the learner's activities and recommend relevant actions during the learning process. This paper describes the functionality, structure and implementation of a learner model used in Protus 2.1 as well as performed actions for on–the–fly update of learner model in order to perform personalisation options.

Key words: Tutoring system, learner model, personalisation, Java programming, Protus, e-learning

INTRODUCTION

E-learning systems experience the rapid growth in the last decades. Also, e-learning has a great potential to continue fast growing in the future. The advantages of learning through a global network are manifold and obvious: the independence from time and space, learners can learn at their own

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pace, learning materials can be placed in one place and used-processed from around the world (Chatti et al., 2013). E-learning is therefore proved to be efficient, flexible and affordable. Development of e-learning is much more demanding and more expensive than the development of a static system since it is desirable to create different views of the same course content to achieve a better system. Different forms of the same teaching materials are needed for the successful implementation of personalised learning options in the system. However, the personalisation options increase efficiency of e-learning, thus justifying the higher initial cost of their construction.

One of the most important segments in today's development and use of the Internet is the personalisation of content and building user profiles based on the behaviour of each individual user (Weerasinghe & Mitrovic, 2012). The formed profile represents the learner at a given time and it will assist system in the choice of new content and information that is presented to the learner. In order to personalise the learning process and to adapt the content to each learner, e-learning systems must use strategies that will meet the needs of learners. Also, these systems must use different technologies to change the environment and to perform an adaptation of teaching materials based on the needs of learners. The process of adaptation can be in the form of adaptation of content, learning process, feedback or navigation.

In order to provide individual adaptation in the tutoring systems it is necessary to store the information about the learners (goals, preferences, knowledge, etc.) to be used for adaptation purposes (Wang & Chen, 2008). This information constitutes the learner model. To achieve the goal of personalised adaptive learning, prior knowledge helps to distinguish what learners already know and what they do not know (Nguyen & Do, 2008). The learner model represents the state of knowledge of the learner in the concerned subject and helps in deciding the correct teaching strategy to be used for the learner.

In the previous works, we implemented an adaptive and intelligent web-based Programming TUtoring System – Protus 2.1 that applies recommendation and adaptive hypermedia to perform personalisation (Vesin et al., 2012). This system is realized as a general tutoring system for learning different programming languages, but it is completely tested for an introductory Java programming course. The implemented system aims at automatically guiding the learner's activities and recommends relevant links and actions to him/her during the learning process. The learner knowledge base in Protus 2.1 is represented by an overlay model in which the current state of a learner's knowledge level is described as a subset of the overall architecture (Vesin et al., 2011). The learner model includes learner's personal information, background, goals, and learning style as well as his/her competence levels for each concept node and each unit in the content tree, and an overall subject competence level.

The rest of the paper is organized as follows. In the second section appropriate related work is discussed. Section 3 describes personalisation and adaptation options used in Protus2.1. Details about learner modelling in Protus 2.1 are presented in Section 4. Section 5 presents system's user interface and its basic functionalities. Section 6 brings conclusions and indicates directions of further research.

RELATED WORK

Learner model is a collection of static and dynamic data about the learner (Nguyen & Do, 2008). These data are stored within the appropriate data structure. The system uses this information to predict the behaviour of learners as a basis for adapting teaching material. Many researchers presented various suggestions for developing learner models and some of them will be presented in this paper.

Model of a web-based personalised intelligent tutoring system with a learner model is presented in (Li et al., 2008). That model makes use of learners' knowledge levels, psychological characteristics and learning styles in order to construct and update learner details (Yu & Zhiping, 2008).

The learner model of adaptive learning system based on Semantic Web has been presented in (Baishuang & Wei, 2009). This model considers several factors including: learner study style, cognition level, interest and hobby and so on. The authors used Protégé to set up learner model ontology and used data mining technology to update learner model.

Other example of learner model and description of the adaptation mechanisms is presented in (Liu et al., 2008). Authors show that the most relevant difficulty in the knowledge modelling in e-learning systems is related to database structures. Their systems concentrate more on advancing a learner's state of knowledge than on analysing and improving the learner's cognitive state. Besides, system does not facilitate the definition and execution of actions that provide constant updating of learner model.

Other examples of implemented learner models are presented in (Desmarais & Baker, 2012; Li et al., 2012; Wei & Yan, 2009; Nguyen & Do, 2008)

Architecture of implemented learner model in programming tutoring system, described in this paper is based on gathered experiences from previously mentioned systems. Our approach brings acceptable solution for the personalisation process. Further we present a way of linking semantics and content, within learner model in Protus 2.1. Appropriate MySQL tables are defined and populated in order to accomplish effective and scalable learner modelling in Protus 2.1.

PERSONALISATION AND ADAPTATION IN E-LEARNING SYSTEMS

Personalisation of the e-learning systems represents the adjustment of the available content and form of teaching materials that are presented to the learner in the learning process based on data from the learner model. There are different types of personalisation in the form of text adjustment, page selection or choice of different forms of lessons. Content can be customized by providing additional material, highlighting important information and with comparative review of different kinds and types of explanation (Devedzic, 2006; Klasnja-Milicevic *et al*., 2010).

There are different categories of users in the e-learning systems. They vary in age, individual abilities, cultural characteristics, occupation, etc. Some are university students, teachers or employees in organizations from various fields. Some of the users are employees in companies responsible for staff training and they use such systems to increase the efficiency of personnel. Often educational content on the Internet are searched by employees of governmental organizations, researchers and administrative staff. Regardless of their differences they were all interested in a quick and effective learning.

Satisfaction and learning effectiveness largely depends on the content being taught, the way in which it is presented, efficiency, relevance, accessibility of such content, and so on. Since all learners are different, different personalisation must be involved in the development of e-learning systems in order to support the individual and unique characteristics of the learners. Personalisation usually takes into account the different levels of user knowledge and application of various forms of assistance and additional explanations, recommendation of different paths through the course, different principles and techniques of adaptive hypermedia, and so on. In addition, the system for e-learning must provide appropriate security information and reports on the results of learning, performance, ranking, and various statistics about teaching process.

LEARNER MODELLING

Building of the learner model and tracking related cognitive processes are important aspects in providing personalisation. The learner model is a representation of data about an individual learner that is essential for an adaptive system. The system uses data from learner model in order to predict the learner's behaviour, and thereby adapt to his/her individual needs. Learner model is a collection of static and dynamic data about the learner (Nguyen & Do, 2008). Static data include personal data, specific course objectives,

etc. Dynamic data include scores, time spent on specific lesson, marks, etc. Also, learner model contains data about his/her performance and learning history.

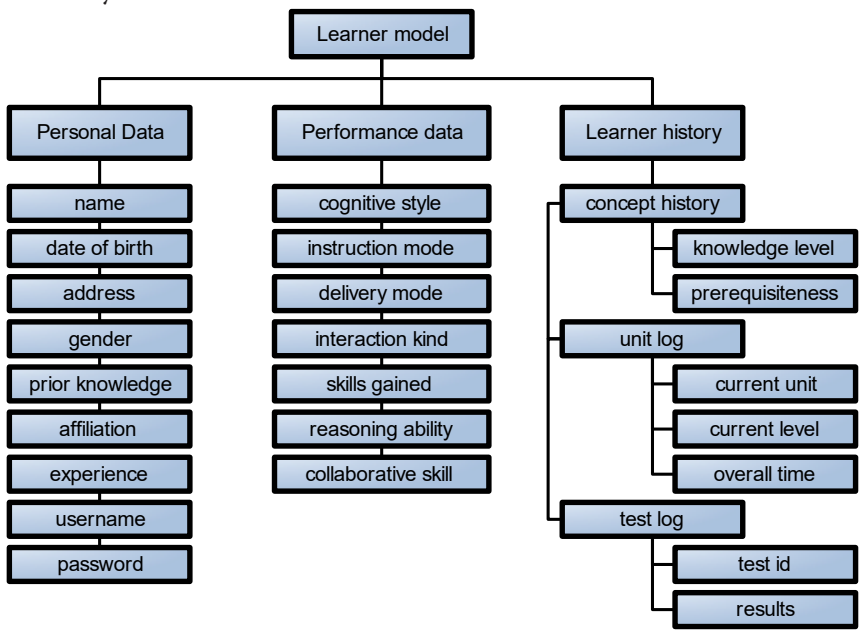
Data from learner model in Protus 2.1 is classified along three layers as it is presented in figure 1 (Devedzic, 2006):

Objective information: personal data, previous knowledge, preferences, etc. The learner edits these data during his/her registration on the system.

Learner's performance: data about level of knowledge of the subject domain, his/her misconceptions, progress and the overall performance for particular learner.

Learning history: data about lessons and tests learner has already studied, his/her interaction with system, the assessments he/she underwent, etc.

Figure 5. Layers in learner model



Learner model represents the data structure shown in Figure 5. Personal data are basic information about the learners that is used for their identification (name, address, date of birth, *etc.*). In addition, these data may include details about the initial knowledge of learners, information about the initial learning objectives and interests of learners, their favourite categories

of media for presenting information, information about the actions that the learner initiated at individual situations and information about the desired reaction system generated as a result for specific actions of learners. Most of this information is collected directly from learners, therefore system can ask them to fill in the questionnaires and conduct initial testing.

Performance data in the learner model represent knowledge level of particular learner about appropriate topic in the field, the errors learner made, progress and overall performance in the course, etc. Most of these properties are presented quantitatively and the system automatically measures and updates them. Recording and regular updating of the information in the learner model allows the system to predict the learner's responses to various learning activities, suggest next steps, set tasks, and so on.

Learning history includes information about the courses and subjects that the learner has already processed in the system, learning objects which he interactedwith, testing that has passed, and so on. Along data on learner progress, the system also monitors and records information about the history of learning.

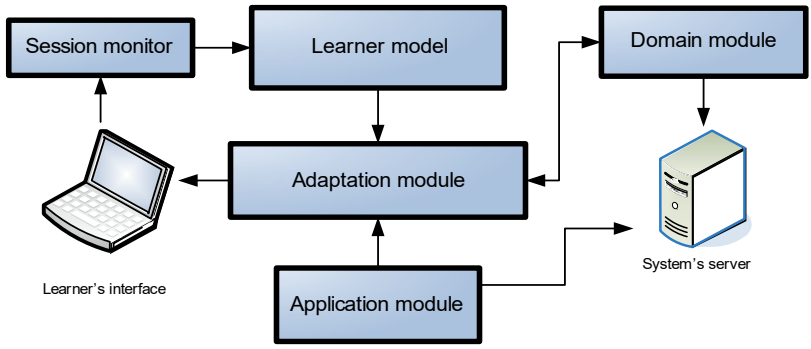
Some data in the learner model are updated regularly, each time learner log on to the system, while some are updated infrequently or only once. Details of modelling learners will be presented in subsequent chapters.

The quality of the learner model may not be proportional to the amount of data stored in it. Usually, as the amount of data in the model is bigger, the personalisation possibilities are larger and precision of models is greater. However, as the complexity of the model is increased, frequent update becomes a problem.

LEARNER MODELLING IN PROTUS 2.1

In any educational system, learner model represents objective and subjective information about the learner, his/her interactions, as well as view of the learners' progress and the history of their activities. Environment or system uses this information in order to maximize the ability to predict the behaviour of learners and adapt to his/her individual needs (Felder & Silverman, 1988;Parvez & Blank, 2008; Vesinet al. 2011).

Figure 6. Global architecture of Protus 2.1



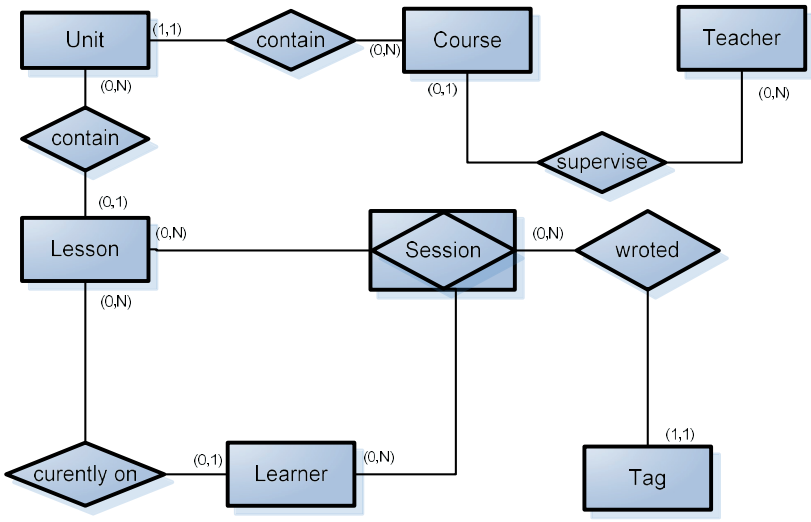
Learner model in Protus 2.1 presents crucial element of system's architecture (figure 6). It is a result of monitoring user's sessions and it provides data for implemented adaptation.

Learner model in Protus 2.1 helps in collecting information about learners' interaction with the system: the user name of the learner, the date and time of access and the numerical results of interaction (accessed resources, test results, etc.). This model is automatically updated each time a request or action reaches the web server (for example, data on changing lessons, resources, assessment test, etc.).

The learner model is initialized by a simple but carefully designed questionnaire which is presented to the learner in first session (Klasnja-Milicevic et al., 2010). The initial overall competence level is decided by checking the learner grades of prerequisite courses and previous experience data, if available. The learning styles are assessed by tracking learning behaviour. The learners are allowed to set and modify their learning preferences and goals (Klasnja-Milicevic et al., 2012).

Protus 2.1 system gradually rebuilds the learner model during the session in order to keep track of the learner's actions and his/her progress, to detect and correct his/her errors and possibly to redirect the session accordingly. At the end of the session, all of learners' preferences are recorded. The learner model is then used along with other information and knowledge to initialize the next session for the same learner (Vesin et al., 2012).

Figure 7. ER diagram of the Protus 2.1 system database



The Protus 2.1 system uses and updates the database with data about learners, teachers, course, unit, lessons, tagging and evaluation process. TheER diagram of the database is showninFigure 7. The database consists of seven tables:

Learner. It contains basic information about the learner as well as some information about the learning styles and learner's progress.

Teacher. It contains basic information about the teacher.

Lesson. It contains information about the lessons.

Unit. It contains information about the unit, lesson and learning objects (resources) from which lesson is consisted.

Course. It contains information about the course, units, lessons, number of learners attending the course and duration of the course.

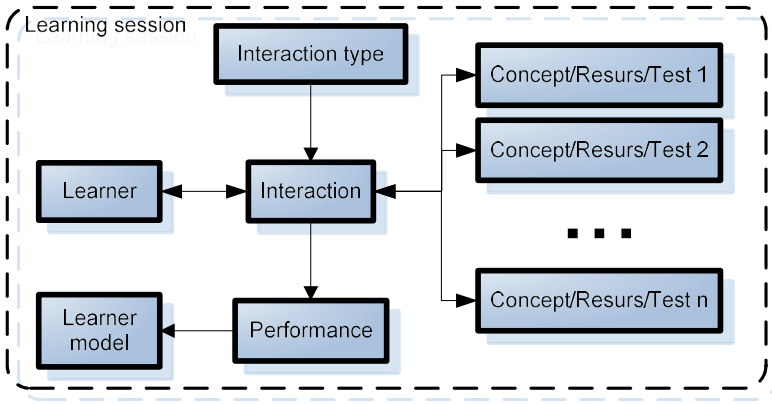
Session. It contains information about learner sessions that the learner has completed during the course and the grades he/she earned for them.

Tag. It contains information about tags and information about lessons and learning objects for which the tag is placed.

The system uses that information in order to predict the learner's behaviour, and thereby adapt course to his/her individual needs.

Figure 8 shows the monitoring and modelling of the learners within tutoring system. The interaction involves all relevant actions undertaken by the learner during a particular session. Interaction always involves some concepts, resources or tests. Interaction may contain some numerical values (score on the test, duration of the visits, the serial number of the visited resources or concepts, *etc.*).

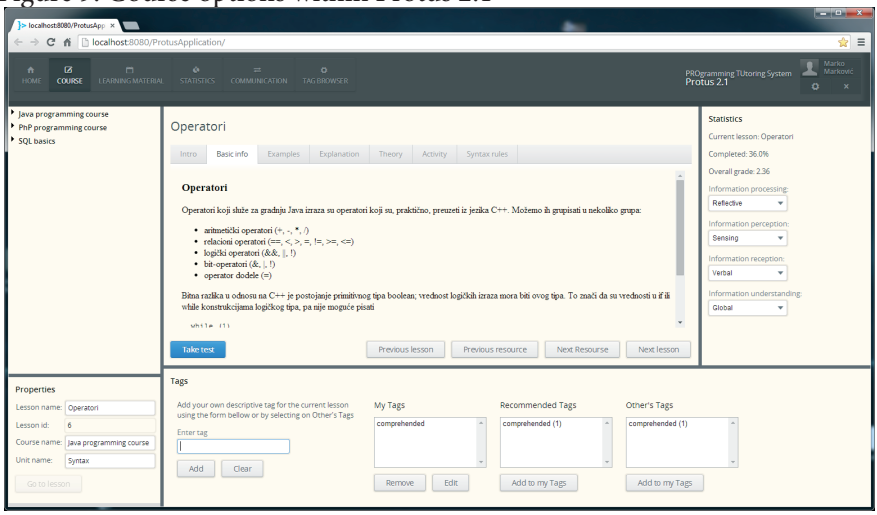
Figure 8. Learner modelling in tutoring system



USER INTERFACE OF PROTUS 2.1

Protus 2.1 is a tutoring system designed to provide learners with personalised courses from various domains. It is an interactive system that allows learners to use teaching material prepared for appropriate courses and also includes parts for testing acquired knowledge. In spite of the fact that this system is designed and implemented as a general tutoring system, the first completely implemented and tested version of the system was for introductory Java programming course (Klasnja-Milicevic et al., 2010). Java is chosen because it is a clear example of an object-oriented language and is therefore suitable for the teaching of the concepts of object-orientation. The course is designed for learning programming basics for learners with no object-oriented programming experience.

Figure 9. Course options within Protus 2.1



The learning content is divided into units, each of which consists of several lessons (*Concepts*). Every lesson contains several resources (presented in different tabs – Figure 9): *Introduction*, *Basic info*, *Theory*, *Explanation*, *Examples*, *Syntaxrules*, *Activity*, etc. To every lesson an unlimited number of resources and tests can be attached. Their number can be increased by teachers using an appropriate authoring tool. Protus 2.1 administrator's module contains additional functionalities for adding new learning material: lessons, resources and tests. This module will be presented in Section 4.1.

TESTING IN PROTUS 2.1

During sessions, learners visit certain resources and solve various tasks. When the learner completes the sequence of learning materials, the Protus 2.1 system evaluates the learner's acquired knowledge. Tests, designed for every lesson, contain several multiple-choice questions. Protus 2.1 provides feedback on learners' answers and gives the correct solutions after every question (figure 10). The learners' ratings are interpreted according to the percentage of correct answers (figure 11).

Figure 10. Feedback after incorrect answer

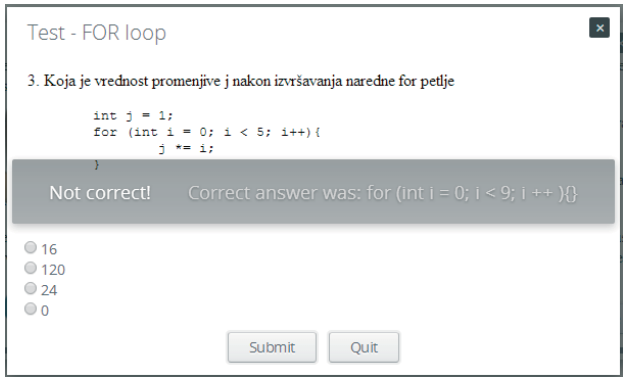
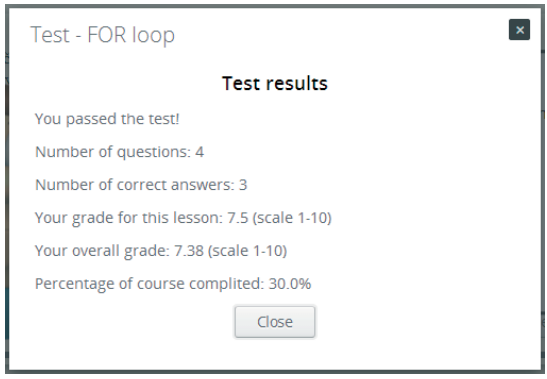


Figure 11. Test summary



EVALUATION PROCESS

When the learner completes the sequence of learning materials, the Protus 2.1 system evaluates the learner's acquired knowledge. The learners' ratings can be interpreted according to the percentage of correct answers, as follows:

5 (excellent) - (80–100%);
4 (very good) - (70–79%);
3 (average) - (60–69%);
2 (passing) - (50–59%);
1 (marginal) - (0–49%).

This five-point grading scale is based on our secondary school grading system. Consequently, learners have a better sense of having mastered the material using this system of evaluation. The system can be easily transformed and adapted to other standards of grading.

CONCLUSION

Although some systems take a learner's characteristics (e.g. knowledge levels, learning styles, *etc*.) and needs into account, choice of right learning material or presentation method to the specific learner is especially important in order to reach the desired teaching effects. Hence, various intelligent techniques are introduced in tutoring systems to perform personalised teaching. These techniques produce personalisation based on data from learner models, teaching material, teaching methods etc. In this paper, we presented functionality, structure and implementation of a learner model used in Protus 2.1 as well as performed actions for on-the-fly update of learner model in order to perform personalisation options.

In order to accomplish successful categorization of learners we tracked characteristics of the learner and collected a variety of useful information:

- about the learner, including cognitive, affective and social characteristics,
- about the learner's perspectives on the content itself: feedback on the content, knowledge of the content (as determined, for example, by a test administered during the learner's interactions with the system),
- about the technical context of use: characteristics of the learner's environment,
- about learner's interaction with content: observed metrics such as dwell time,
- number of keystrokes, patterns of access, etc.

We proposed a design and architecture of learner model that can be used in tutoring systems from various domains. This approach allows implementing adaptation customized to different requirements of learners. The learner demand is derived from the knowledge contained in the learner model. For a future work, we consider testing Protus 2.1 and influence of various modelling options and personalisation on progress of the learner.

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FROM E-LEARNING TO E-EXAMINING

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Sebastian Rymarczyk[3]

Abstract

E-learning is distance teaching and has got both a lot of advantages and disadvantages. Is e-learning platform able to act as e–examining one? It is, but on appropriate conditions. They are both technical and legal ones. Due to this fact, legal conditions concerning e-learning for conducting exams with the use of distance education platform must be analyzed. The document – Regulation of the Minister appropriate for the area of education and examining with the e-learning platform – will be subjected to the analysis. As far as technical conditions are concerned, Krakow University platform will be taken into consideration.

Key words: e-learning, blended learning, e-exams, e-learning platform, e-learning in the contemporary world, innovative form of academic instruction, innovative method for teaching, definition of e-learning, the influence of e-learning on the level of education, the main advantages of e-learning exams, the disadvantages of e-learning exams,

INTRODUCTION

E-learning is seen as online education with the use of the Internet. Both e-learning courses and trainings as well as the place they are held can have different goals and be of a different nature. Courses organised for companies are usually of an instructional character, e.g. they can train for performing a specific activity, inform about a new promotion or a new product. Due to e-learning, quick information in companies, e.g. about a new service being implemented on the market is able to reach every single branch in the whole

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world at the same time without any delays that may spring from the necessity of organising trainings on the spot. It allows also to save the employees' time as they are able to attend a training at the right time for them without switching off from other activities, contrary to the trainings held on the spot owing to which all employees are obliged to participate in them at the exact time and place no matter what activities they have just been doing. In the case of companies e-learning courses can be entirely distant. However, such formulas lead to passing a number of course stages, each of which ends with achievement tests that allow trainees to go on to the next stage.

As far as students are concerned, the situation differs. Training in Institutions of Higher Education is adjusted by proper legal regulations which must be adhered to by the Institutions.

DISTANCE EDUCATION AT UNIVERSITY

The usage of online methods and techniques in students' education is possible. However, depending on the university teachers and students' needs online education can turn into blended-learning. According to one of the definitions e-learning is also 'an electronic repertory of the contents subordinate to a specific training goal, intended to self use and equipped with navigational elements'[4]. On the other hand, blended learning is a combination of classes conducted in a traditional way during which the contact between a teacher and students is in a classroom, and classes or a course performed on the Internet with the use of multimedia techniques.

In the case of the institution of higher education we can talk about a variety of educational forms depending on a proportion between the part of the distance classes and the ones conducted in a traditional way. That is why, distance training in higher education institutions can be either of complementary form, supportive or supplementary comparing it to traditional classes[5].

A technological aspect is a remarkably crucial element in the whole process of online education. We deal here with different types of software as well as equipment resources. Both software, which is tools helping to create materials that are used in the educational process and e-learning platform where materials are to be uploaded should be tailored to the university needs so that they could support the accomplishment of training effects that have

[4] M. Hyla, *Przewodnik po e-learningu*, ABC a Wolters Kluwer business, Warszawa 2007.

[5] M. Woźniak, M. Grzyb, S. Rymarczyk, *E-learning in student education*, Škola biznisa 1 (2013), p. 12–21.

been planned to the exact subject[6]. On the other hand, equipment refers to the resources that serve to maintain the technical infrastructure (e.g. server, link).

Materials circulated to students can be of various forms: materials for self-study, material in a written form supported with pictures, animations, educational games, progress tests, audio books, podcasts, screen casts, vods, webcasts. The accomplishment of the training effects planned in the educational process should be supported by the right choice of the form of the material preparation.

Making the online method of training more common depends mostly on people who use it, that is academic society. The development of the method is dependent on the involvement of both teachers and students. However, some obstacles may occur here, that are age, some experience in using online training, information technology competence, and a kind of attitude towards the online education as such.

Principles of the academic distance education system illustrated with an example of KAAFM.

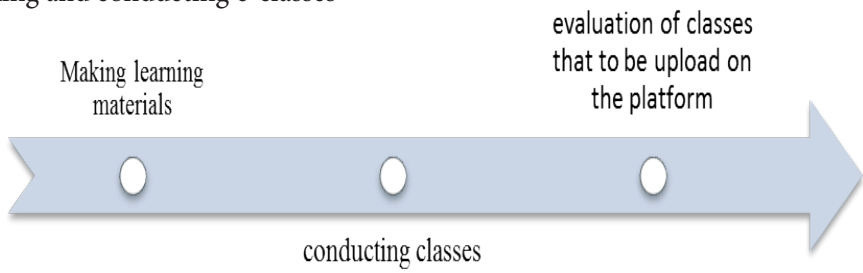
The process of performing classes with the use of online learning methods and techniques in Andrzej Frycz Modrzewski Krakow University is regulated by the academic distance education system KAAFM[7]. There are rules of preparing training content, technological aspects of conducting distance classes, the rules of teacher and student's work. According to the guidelines of the system, the classes can be performed in a form of e-lectures, e-classes, e-foreign language classes and e-seminars. As far as time-based involvement of methods and techniques is concerned, the classes can be performed in a supportive system enabling the use of the distance education amounting to 20% of the classes scheduled for the exact subject, supplementary up to 40% and a complimentary one– up to 60% . Providing distance education certain requirements must be necessarily met in relation to the amount of the online learning that is included into the general number of classes of the exact subject. The requirements concern both the content and the way of sharing the educational material. The course that is about to start on the e-learning platform in one of the three mentioned above time-based systems must be approved in the process of certification. It is still blended-learning which means that it combines classes performed in a traditional way with the ones performed in a distance way. Thus, educational classes of any of the subjects cannot be conducted in a distance way in full number of course hours. Every

[6] Z. Zieliński., *E-learning w edukacji, Jak stworzyć multimedialną i w pełni interaktywną treść dydaktyczną*, Wydawnictwo Helion, 2012

[7] System for KAAFM.

academic teacher can upload some content without any certification if the materials are only supplementary to traditional classes. Every party of the educational process has their rights and responsibilities. They are particularised at length in the attachment to the rector's internal regulation[8] that defines work rules in the classes which use the methods and techniques of distance education. Distance education process requires the usage of certain tools. Therefore, both students and the faculty are trained to use the e-learning platform. Academic teachers are trained in a traditional way and by the use of the online platform. Both traditional trainings and the e-learning course thematically involve the use of the platform and methodology of conducting classes. Students are trained within the scope of Information Technology classes and must complete an e-learning course. The possibility to use computers with the access to the Internet by lecturers and students on university premises is highly important. Owing to this fact, the students who do not have the access to the Internet outside the university are still able to use the learning materials from the platform within the university area.

Figure 12. A model used in the university that put in the order the process of making and conducting e-classes



Source: own work.

E-classes are distance classes conducted by the use of e-learning platform. It enables to insert learning materials of different types in the electronic form (among others films, quizzes, music files, exercises, courses in the SCORM format). The e-learning platform enables to communicate with students via forum (asynchronous), chat and have video-conferences. Besides, a well-

[8] Zarządzenie Rektora Krakowskiej Akademii im nr 6/2011 z dnia 14 marca 2011 roku w sprawie zasad prowadzenia zajęć z wykorzystaniem metod i technik kształcenia na odległość, wymagań, jakie muszą spełniać e–zajęcia w zależności od ich typu, formy oraz stopnia nasycenia elementami zdalnymi oraz wymagań, jakie muszą zostać spełnione, aby zajęcia dydaktyczne prowadzone z wykorzystaniem metod i technik kształcenia na odległość mogły zostać wliczone do pensum dydaktycznego w Krakowskiej Akademii im. Andrzeja Frycza Modrzewskiego w Krakowie, Załącznik Nr 4 Zasady pracy na zajęciach prowadzonych z wykorzystaniem metod i technik kształcenia na odległość.

developed reporting system allows to control teachers and students' current work.

The model of performing classes with the use of distance education methods and techniques applied at the university is displayed in figure 12. It is based on five-stage model ADDIE (Analyze, Design, Development, Implementation, Evaluation) that puts in order the process of making e-classes and is adjusted to the academic needs. In the case of the university it reflects on the division into three stages. The first means making learning materials. In practice, this stage divides into:

- introducingclassproposals
- preparing multimedia learning materials
- classcertification
- The second stage refers to conducting e-classes. It means:
- giving access to learning materials on e-learning platform for distance education on schedule of e-classes
- moderating discussions (forum, chat), synchronous and asynchronous consultations
- conducting classes with the use of video-conferences
- verification of education effects adjusted to the competence types

The third and the last stage of teaching refers to evaluating classes that are on the platform. Within the evaluation students express their opinions about prepared materials. They also evaluate the way of conducting classes. E-learning platform as well as students and teachers are also evaluated.

Thus, the requirements resulting from the Act[9] and Regulations of the Minister of Educationand Schools of Academic Rank[10][11] are met in the education process in which the platform is used.

E-EXAMS

Distance education and more precisely the conditions to conduct it at universities are particularised very well. The possibility to use the methods and techniques of distance education is regulated by proper regulations mentioned above as well as by internal university ones. What about the possibility of taking exams? According to the Minister's regulation a university

[9] Ustawa z dnia 27 lipca 2005 r. Prawo o szkolnictwie wyższym z pózn. zm. (Dz. U. 2005, Nr 164 poz. 1365), Art. 164 ust. 3.

[10] Rozporządzenie Ministra Nauki i Szkolnictwa Wyższego z dnia 2 listopada 2011 r. w sprawie Krajowych Ram Kwalifikacji dla Szkolnictwa Wyższego, Dz. U. 2011, Nr 253 poz. 1520.

[11] Rozporządzenie ministra Nauki i Szkolnictwa Wyższego z dnia 25 września 2007 z późn. zm.

conducting classes with the use of distance education among others must meet following requirements, that is 'to provide a current control of students' learning progress, knowledge, verification of skills and social competences, including receiving credits, conducting final exams on-site. The necessity of conducting exams and receiving credits on-site do not exclude the possibility of using the e-learning platform as a tool for knowledge verification. If an exam is being prepared in the form of tests, the platform can be used. However, exams evaluating students' knowledge must be organised in such a way so that there are no doubts about the student's individuality of taking e-examinations. Overcoming the obstacle there are a lot of multimedia materials that can be used while making tests and exam tests for students. There is also quite a clear reporting system. Because of this, what should be taken into consideration is:

- Such an exam will be held in a computer classroom.
- Only students entitled to take such an exam on the platform and present in the classroom will be signed up to the right group.
- The exam test is given to the students only in the moment of taking the exam.

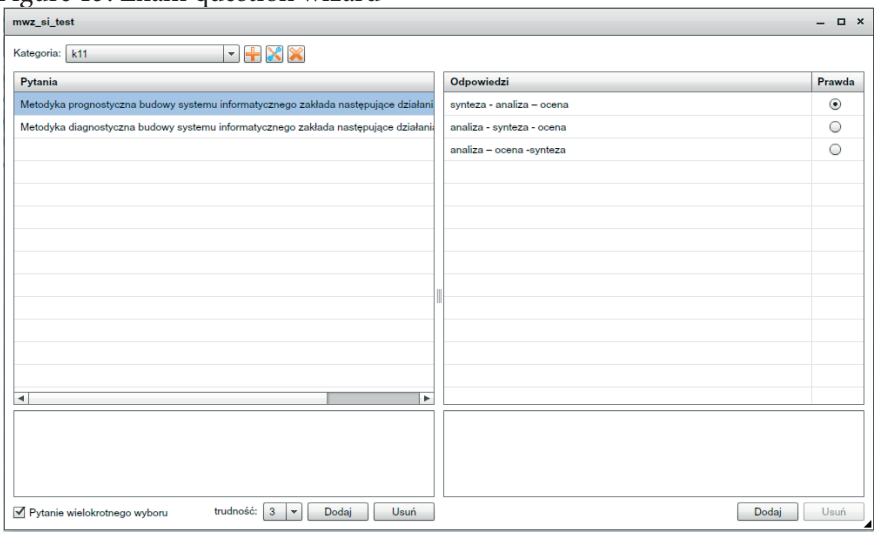
The fulfilment of the first condition is essential considering the Regulation quoted above stating the necessity of performing exams and giving credits on-site. The second condition mentioned is equally important. This will help to eliminate the probability of getting the access to the test by people who should not enter it due to the lack of entitlement or because of the absence during the time of the exam. The third condition helps to provide students with the same accessibility to the exam test. The test is published and given to the students by the examiner at the moment when all exam participants are logged in and are able to start working on the test. If a student starts doing the test a bit too late, they will have the same amount of time to complete it as the ones who started it punctually. The e-exams must be completed with the use of computers being at the university disposal on-site, in compliance with the conditions of exam individuality of the students' work and all available ways used by the university to secure the data.

However, meeting the requirements mentioned above may seem to cause certain drawbacks. Nonetheless, in the case of a traditional exam only students entitled to take the exam are allowed to enter the exam room. As far as the usage of the e-platform is concerned, the place of student's presence or absence is changed from a paper list to an electronic one in the exact exam group on the platform. The e-exams have got a lot of advantages. One of them is possibility to prepare exams that use interactions. It means that exam questions can be asked in the interactive form, by the use of some footage or different audio materials. This enables to check students' knowledge thor-

oughly from a given subject in such a way that would not be possible during a traditional exam taken on paper sheets. Apart from traditional single or multiple choice questions, true/false ones can be used as well where students are to decide whether presented sentences are true or false. Among different questions gap-filling exercises can be also used. Students must complete the gaps with the proper one out of the three given options. It can be done by marking or dragging the right option. It is also possible to use interaction of another type. The student's task is to put into the right order all displayed sentences, texts, indicated by the examiner e.g. from the oldest to the newest or from the most important to the least. Interaction exercises can be applied in other subjects as well, e.g. in geography, history where showing the right place on a screen is required or in medical subjects where students are asked to show the place of certain organs or other things in X-rays. There are three other types of interactions-matching. The first one is connected with matching the right text to the right picture. The second one refers to the matching the proper text to the right one, e.g. matching the proper definition to the right word. The third option is to match pictures to pictures. The last interaction that can be used during exam time can be matching certain sentences that are displayed on a computer screen to the right category. Within this interaction matching items to two or three categories is possible depending on exam needs.

On the Krakow University platform there are also some possibilities to create a bank of exam questions that can be extended at every moment. Question wizard enables also to group the questions within categories. The categories are created by a person responsible for preparing exams and they can be, e.g. levels of difficulties of questions or categories grouping thematic questions. This way for preparing exam questions enables to make a big bank of questions from which questions are randomly selected during the exam. To make the question wizard function properly, questions selected randomly from the bank of questions during the exam should be at the same level of difficulty but of the different content. Thus, this activity must be prepared before, just during the process of creating the exam. An example of the exam question wizard usage is shown in figure 13.

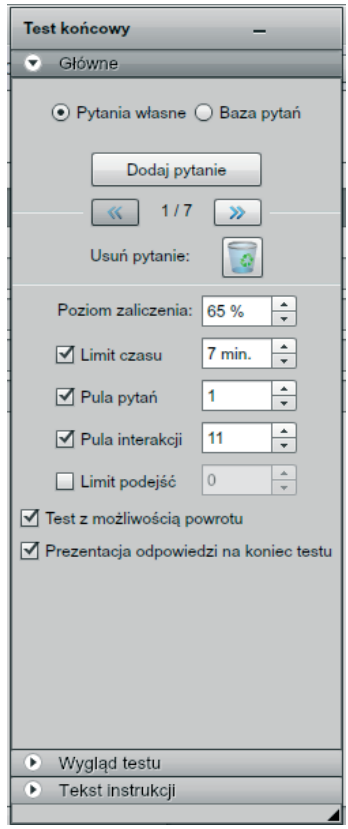
Figure 13. Exam question wizard



Source: Krakow University e-learning platform screenshot.

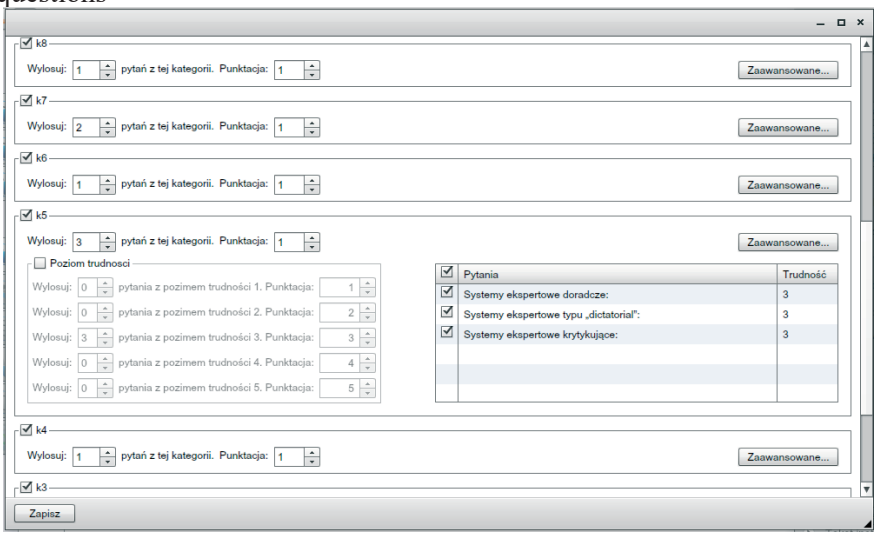
Preparing exams by the use of course generator requires also other settings. A window of a final test is shown in figure 14. There the examiner has the possibility to put test questions of single or multiple choice individually. The questions can be also chosen from the bank of questions created in the test question wizard. Such an example is shown in figure 15. The level of test completion can also be set by the examiner. Additionally, a number of test questions and interactions that are to be displayed to a student during the exam among all available within the prepared exam test is chosen. Last but one option of the test enables students to return to previous questions and interactions. However, the option is hardly ever chosen by examiners. After completing the test, the last option allows students to see the correct results in the form of the set of questions that were displayed to them during the exam. This option is rarely used by people conducting courses. However, it is used in the case when students are in doubt which answer or option they marked. Thus, in order to dispel any students' doubts concerning the problem, it is an easy way to glance at students' questions and answers without searching through the whole data.

Figure 14. The window of the final test



Source: Krakow University e-learning platform screenshot.

Figure 15. The window of questions' configuration from the bank of test questions



Source: Krakow University e-learning platform screenshot.

During the exam students can control the number of questions and the time left to the end of the exam provided that the exam time has been set by the person preparing the exam. What is more, an instruction concerning test completion always precedes its entering. The examiner can use the instruction already set in the course generator, which is shown in figure 16 or introduce their own instruction that can be displayed in the middle of the screen instead of the one that is used by generator default settings. In the bottom left corner of the exam window there are always displayed a number of a question that is being answered by a student and the total number of questions. There is also time that is left to the end of the exam shown next to the question counter. In the bottom right corner there are always navigation buttons enabling students to go to the next question or return to the previous if it is possible to be done in the test.

Figure 16. Exam test window

Source: Krakow University e-learning platform screenshot.

A lecturer is capable to report the exam results any time. Having finished the exam it is both possible to get the exam results in the form of electronic reports and browse through the work of the exact student. In the report there are both students' answers and the correct ones. The automaticity of test checking undoubtedly influences on transparency of exam conducting.

SUMMARY

Distance education has been a well-known form and has been used for a long time at university. The use of this type of education is regulated by numerous regulations that precisely explain the rules of conducting this type of classes. However, the usage of the e-platform as the exam one has not been practised yet. As it turns out it is possible to conduct e-exam on the e-learning platform while the requirements described in the Act of Higher Education as well as in the Regulation of the Minister of Science and Higher Education are met. It should be remembered that such exams should be performed on-site. The exam should be taken only by entitled students within the exam group. Students must work on the exam individually, on their own, which must be done above any doubts.

Exams taken on the e-learning platform brings advantages for both students and lecturers. One of them can be the possibility to see the work just after finishing the exam. So, students immediately know whether they passed

the exam or not. In the event of any doubts, students can see their tests together with the answers they marked. As all the results are automatically counted there is no possibility of misreading the students' answers. Besides, the exam in the electronic form enables to use audiovisual and audio materials that can be played by students many times. This may occur to be helpful in the case of making sure what answer should be chosen. Exams conducted in the electronic form have got a lot of advantages for lecturers as well. Examiners can get a clear and transparent report with exam results. As the exam is checked automatically, examiners' tasks is just to prepare marking schemes. Besides, it is possible to show almost immediately the exact test to a student without the need of searching through piles of other exam papers and documents. The examiner has got a lot of work resulting from uploading questions and the proper preparation of the exam. Considering, the time devoted to the exam preparation and the advantages that come out of its conducting and reporting, it can be concluded that e-exams outweigh.

The use of distance education is justified at university. It enables to put into one medium both the process of distance education, lecturer-student communication and the process of examination. It enables to support and enrich the traditional process of education at university.

STANDARDISATION OF E-LEARNING TRAININGS

Bernard Maj[1]

Abstract

In recent years, e-learning developed very fast. The reason for this is a huge demand for companies and institutions, not only educational, on this type of solution. The result is a large number of companies producing e-learning platforms and courses. This makes it necessary to introduce standards that unifies system of distance education. In addition, e-learning almost immediately are used constantly emerging new Internet technologies. This results in a continuous evaluation of these standards. This paper looks at the development of e-learning standards with an emphasis on being applied.

Key words: e-learning, blended learning, e-learning platform, e-learning in the contemporary world, definition of e-learning, the influence of e-learning on the level of education, e-learning standards, the history of e-learning

STANDARDS

A standard defines a make, a sample that meets certain requirements. The term displays a criterion defining common , usually the most needed features of something, e.g. a manufactured object, programme or work. The implementation of standards in industry and trade became crucial a lot at the beginning of the Industrial Revolution when the possibility of spare parts precise production for machines had appeared. Henry Maudslay devised the first industrial lathe in 1800, which enforced the standardisation of threads for the first time. Throughout two centuries companies were responsible for standardisation, which often led to the lack of possibilities of different machines. The first national standardising organisation – Engineering Standards Committee was set up in London in 1901.

Initially standards involved technical norms and within the development of science and technology they started applying all new products. The Inter-

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net along with its computer software developed at the end of the last century were not omitted either.

Almost a hundred years after the first standardisation of threads the need of standardisation in education appeared. In the beginning, it referred to sorting the learning content out which every learner/student should acquire at a given level of their academic development. Later, the need of introducing standards of quality of education appeared.

E-LEARNING

The beginnings of e-learning, treated as the definition shows as a distance learning, are found by many authors in the 30's of the 18th century[2], when an advert connected with the possibility of doing a correspondence course turned up in the USA. However, the letter 'e' that appeared in front of the word 'learning' as in terms like 'e-marketing' or 'e-commerce' has its beginning from the word 'electronic', which in practice had its connection with the Internet and computerisation. The whole previous distance learning is connected with e-learning similarly just as sending a herald with an announcement about the arrival of ships with wine in ancient Greece as an e-commercial or purchasing order of any goods to a trade company as e-commerce. The e-learning term appeared in 1997[3] and two years later it appeared in CBT Systems Seminar in Los Angeles[4][5]. In the following years a lot of meanings were found under 'e' so that the whole system of education could be defined by it[6]. At this work the focus was put on the primary (the end of 90's) definition of e-learning i.e. virtual and/or online learning.

E-learning then is the entirety of processes connected with teaching and learning by the use of modern Information Technology, especially the Internet[7]. Since then, e-learning has been experiencing a rapid period of developing. This concerns mostly the tertiary education. In Poland the tendencies of fast e-learning development prepared for students' needs have been also

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[2] http://www.heuristic.pl/blog/ e-learning/161.html.

[3] http://web.archive.org/web/20130518215954/http://connectedplanetonline.com/mag/telecom_bright_future_distance.

[4] http://www.leerbeleving.nl/wbts/1/history_of_elearning.html.

[5] http://www.talentlms.com/elearning/history_of_elearning.

[6] http://www.educause.edu/ero/article/think–exciting– e-learning–and–big–e.

[7] J. Kusiak, *Wprowadzenie,* [w:] *Wprowadzenie do e-learningu*, AGH Uczelniane Wydawnictwa Naukowo-Dydaktyczne, Kraków 2008, s. 7.

noticeable for 10 years. It is connected with the Act – Higher Education Law 2005 ch.2 that sanctioned the possibility to conduct academic classes with the usage of methods and techniques of distance learning (Art.164.3 u.p.s.w). It simultaneously obliged the Minister of Higher Education to define the conditions of their accomplishment and among other things to impose the obligation on universities to ensure the proper accessibility to this kind of classes for students and their right time proportions, both at intramural and extramural studies against the total time of classes conducted in the process of education (Art. 164.4 u.p.s.w.)[8] .

THE NEED OF STANDARDISING COMMERCIAL TRAININGS

Every investor – a company turning to internal e-trainings , a training company stretching its offer to online trainings, a school or a university deciding upon a commercial platform LMS – turning to e-learning system implementation expects that the solution will simplify and speed the cycle of training and will lower the cost of employees ' education as a target. In the beginning, they will be interested in not only buying the LMS platform (Learning Management System) but also ready – made courses from other companies. In order to lower the costs they can also decide on using some bought ready – made courses on one of the free LMS platforms. After some time, probably after internal trainings and acquiring certain experiences they may decide upon making their own e-learning courses creating mainly in LCMs class systems (Learning Content Management System). If there is some demand for such courses on the market they may decide to sell them. The investor is not only interested in the cost of the purchased LMS system but above all the possibility to transfer single training units among training platforms of different companies but also its high quality connected with intuitive interface both during forming courses and the whole training process (from the perspective of a trainer, trainee and the admin of the system). Due to this fact they will expect from such a system and purchased trainings following behaviours:

- purchased courses or their parts in the form of training objects can be easily embedded in LMS and LCMS systems,
- a change or development of the own system does not require changes in implemented courses,
- created own solutions can be embedded in other popular system (sale of the courses or their parts to other investor).

[8] M. Dąbrowski, *E-learning w szkolnictwie wyższym*, „Studia BAS", Nr 3(35) 2013, p. 203–212, www.bas.sejm.gov.pl.

Authors of the courses will be interested in lowering the production costs, which can happen when a training being under construction will work irrespective of LMS platform on which it will be embedded.

The authors of LMS and LCMS platforms are interested in the fact to let their platforms serve maximally the biggest amount of formed trainings.

To make it possible, introducing standardisation in e-learning concerning the content packing, communication and metadata has become necessary.

THE NEED OF STANDARDISING THE OPEN TRAININGS

In the last decade open (free) courses directed to both people searching for patchy and complete knowledge appeared on every level of science on the Internet. Such trainings are organised mainly by:

- people who claim that the access to the knowledge should be free of charge,
- enthusiasts of a narrow field of study, who willingly share their knowledge with others,
- those looking for some extra work, believing that they will be spotted and their knowledge of the topic on which they made a training, will bring some real offers,
- school teenage or university groups doing homework and sharing the results.

In most cases such people create either training films uploaded onto portals like YouTube or their own websites. Even if some of them or their parts aspire to be learning-teaching units (AU – Assignable Unit) they do not usually achieve the standards of distance learning. Their implementation on e-learning platforms as well as their possible division into smaller learning-teaching unit s become rather problematic.

To make the trainings implemented into training programmes performed on e-learning platforms first, they must be accurate with the given LMS platform, which requires them to be formed along with the standards.

A significant growth of free learning-teaching unit s is expected to be seen, just like in the case of open –source software that has appeared massively in the last decade next to commercial software, all the more, there have been a lot of free programmes created to make such trainings and export them along the right standards.

The need of standardising the quality of trainings.

Standardising the quality of trainings is also remarkably important in a process of training apart from technical standardising (among others a description of learning-teaching units so that they could be transferred among

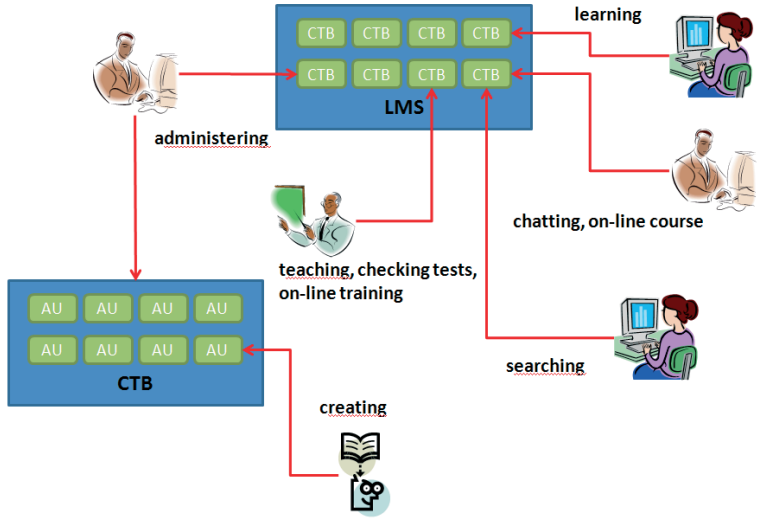
platforms, formats of files). One of the first definitions of standardisation of quality in Polish education defines the standards as criteria of school assessment of efficiency characterising the posited state of affairs. According to it, we will indicate the performance level of educational tasks achieved by school or its value from the perspective of social mission[9].

Quality standardisation is far more difficult than equipment standardisation (it often comes down to measurable parameters) or programming one (setting a form of description, the order of information, etc.) as the term of quality of training itself is hard to define. The quality of the e-learning course is determined by its technical preparation – easy interface, easily passed knowledge, pleasant access to a technical support if needed or a tutor and the results of the course acquisition in the form of achievements intended initially. Students' assessments should be based on published and consequently used criteria, regulations and procedures.

E-LEARNING STANDARDS

Figure 17 shows actions of people dealing with LMS platform. They are authors of training modules, administrators of the platform, trainers and tutors, trainees and outsiders looking for some information on required topics.

Figure 17. Peoples' actions dealing with LMS platform, own work



[9] A. Bogaj, *Efektywność kształcenia w: Encyklopedia pedagogiczna*, red. W. Pomyłko, Fundacja Innowacja, Warszawa 1993.

Authors make single learning-teaching unit s (AU). To let the administrator tie them together and create a whole course (CTB – Computer Based Training) they must be written and defined along with the same procedures so a substandard of LMS platform must be applied. However, if a single unit or the whole course is to be implemented on any LMS platform, there must be one of the types of the distance learning standards applied – the standard of packing. It is essential to let the platform transfer and compile the parts into one unit.

In order to make the students' trainings possible on the LMS platform with implemented courses a mechanism of authorisation must be created to let students be trained . This will allow to follow the learning-teaching units used by them as well as the observation of the students' progress and educational results. Communicative standard essential for interaction between a trainee, content and platform is responsible for it. Administrators of LMS platform must have the possibility to catalogue and make the information about the courses their substantive and technological content available. In other words they must have information about how many, what type and what content of learning-teaching units form a training. Metadata is responsible for this.

Trainees participating in a training should be satisfied with it. Satisfaction from the training should come both from its results (acquiring skills, knowledge) and participation (interesting way of performance, talking to a tutor). A training based on clicking 'move', 'move', 'finish' is unacceptable. Standardising quality of training is responsible for it.

Standardising organisations in distance learning area can be divided into four groups:

- Organisations standardising e-learning technologies;
- Approved organisations accrediting standards;
- Organisations standardising component technologies used in distance learning;
- Organisations standardising the quality of materials (substantive).

Some organisations standardising e-learning technologies and accrediting the standards should be mentioned:

- AICC – Aviation Industry CTB Committee[10] – international association affiliating professionals who make training and educational systems for aviation industry. Their work is widely used in many other branches. AICC made a standard with the same name that was commonly accepted in e-learning and LMS interoperability (AICC/CMI Guidelines For Interoperability[11])

[10] http://ww.aicc.org.

[11] https://github.com/ADL–AICC/AICC–Document–Archive/releases/tag/cmi001v4.

- IMS – Global Consortium[12]– non profit organisation set up within the consortium of educational institutions (first universities but now institutions on all levels of education), publishers and companies making software. The aim that was set was to prepare the environment specification and learning content in distance learning. IMS generates general clues and guidelines that are integrated with evolving SCORM versions. It also introduced Common Cartridge standard that is wider, more complex but gives more possibilities than SCROM.
- ADL – Advanced Distributed Learning[13] is an organisation supervising and integrating clues and solutions of other organisations (among others AICC and IMS) in the form of SCORM (Sharable Content Object Reference Model) that founded in 1997 by the Department of Defence in the USA has always had a mission to improve the access to education, trainings and help the efficiency adapted to individual needs delivered in an effective way in terms of costs.
- ARIADNE (Alliance of Remote Instructional Authoring & Distribution Networks for Europe) works on LOM standards under IEEE auspices[14].
- IEEE LTSC – IEEE Learning Technology Standards Committee[15]– is a part of IEE Computer Society Standards Activity Board – the organisation transforming the clues mentioned above into official industrial and global standards (ISO).
- LETSI – International Federation for Learning, Education and Training Systems Interoperability[16] – international non – profit organisation concentrating on enabling e-learning technical interoperability.
- ASD Certification Institute's E-learning Courseware[17] affiliating Polish specialists[18] should be mentioned as the one that standardises the quality of materials and just like the two more described above AICC and IMS.

[12] http://www.imsproject.org.

[13] http://www.adlnet.org.

[14] http://www.ariadne–eu.org/.

[15] http://standards.ieee.org.

[16] https://letsi.org/.

[17] http://www.astd.org/content/ASTDcertification/.

[18] http:// www.astd.pl.

Another organisation worth mentioning is the one that standardises technology. It is consortium W3C which takes care of the development of networking standards like XML and HML used both while creating and processing metadata and creating interface between the platform and tutors, students and administrators.

All the organisations mentioned above interact and are not independent of themselves.

THE STANDARD OF CONTENT PACKING

To keep the cohesion of the courses on the platform and to form different trainings from partly repeated modules there is a need to introduce a standard that could define the ways of grouping and joining particular files that combine a learning-teaching unit and teaching units in one entire course to guarantee that every file will go to the right place on the target educational platform. The standard defines:

the ways of file cataloguing in a learning-teaching unit as well as methodology of joining and parting files

the ways of cataloguing and organising teaching units so that the system could show the contents and a user could activate any given module

methodology of transferring learning-teaching units between platforms without defining the structures of catalogues

Among packing standards that are on LMS platform we can distinguish:

- AICC,
- IMS GC,
- SCORM,
- Tin Can,
- Common Cartridge.

SCORM standard in the 1.2. version[19] was made based on the two first ones. Due to many faults SCORM 2004 (developed up to the edition 4) was made. However, the improvement of the standard caused a degree of too big complexity of projects, which was not of much interest. Up to now among all SCORM users, 75% of them have been using SCORM 1.2. version.

ADL decided to solve problems with SCORM by announcing a request to online community. ADL chose a leader of e-learning branch RUSCI SOFTWARE among applicants. The company conducted a lot of interviews with e-learning community to determine the most important factors of SCORN improvement. The project was called Tin Can. In effect, The standard Tin

[19] http://scorm.com/scorm–stats/.

Can API known also as Experience API or XAPI has been developed and is said to replace SCORM.

IMS GC noticing the SCORM stagnation had put a lot of effort to diagnose problems connected with SCORM, which led to the creation of a group of standards called Common Cartridge.

COMMUNICATION STANDARD

Implementing communication standard is required to enable the exchange of information (messages) between e-learning platform, learning-teaching units placed on it and a student's computer. Standardised messages are required to carry information fulfilling the following assumptions:

The system must authorise a logging person on the platform (as a full user or a guest) so that it could personalise some displayed content

The learning-teaching unit must inform the system what part of the material has been covered by a trainee

Supervising system must register a trainee's progress as well as must know when the trainee finished (shut down) the learning-teaching unit

Similarly, despite the development of the standards just like in the case of packing standards, there are still two dominant older standards:

AICC Guidelines and Recommendation (AGR006, AGR010)

SCORM RTE (Runtime Environment), that has adapted the entire AICC standard. During a typical SCORM RTE implementation communication is possible by the use of JavaScript language function from a dedicated library that describes rich and a complex language of communication.

It can be expected that in the following years the essence of these standards will be taken over by parts of Common Cartridge and Tin Can standards.

METADATA STANDARD

In order to index educational materials (data files, training units, courses, trainings)metadata i.e. descriptive labels are used in e-learning systems. Therefore, searching for any needed materials by the use of LMS platform is easier and quicker. It is especially important in trainings' repository. It can provide a lot of information concerning the entire course and its component parts. However, to let the units together with metadata be transferred between the platforms, they must be created along with one standard. Metadata provides:

- a trainee with all necessary data to identify the right course and its content
- the author with information allowing to identify and select AU (or component parts) proper to the created course
- the author and administrators with data about the author, copyright, possibility of AU implementation

At present, there are three standards concerning metadata:
- IEEE 1484.12 Learning Object Metadata Standard
- IMS Learning Resources Metadata Specification
- SCORM Metadata Standards (based on IEEE 1484.12)

Repositories storing trainings have been setting up all over the world recently. There are more free trainings created with the intention of complete free education. However, in order to put a training in a repository, it must be defined in accordance with metadata standards. It can be said that a learning-teaching unit that is not defined by metadata is not seen online (and will not be)[20].

STANDARD OF QUALITY TRAININGS

Quality is a philosophical term introduced by Plato as '...a certain perfectionism level.'[21] In the case of quality training a definition from the ISO 8402 standard will be more adequate: '...the overall product features or a service that decide about the product or the service ability to fulfil diagnosed and forecast needs.'[22]Defining the quality of a training will be dependent then on the choice of the assessed training components. Unfortunately, not all of them are measurable. Some of them depend on people taking part in the training.

The attempts to create standards of e-learning trainings have been performed all the time. The example can be the work of European Association towards Quality Assurance Program in tertiary education[23] or Academic E-learning Association in Poland[24]. However, standards more often come down to some clues.

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[20] J. Brzostek-Pawłowska," Rola meta danych w upublicznieniu, promocji i interoperacyjności e–kontentu", w http://www.e–edukacja.net/trzecia/_referaty/14_e–edukacja.pdf.

[21] http://www.jakosc.biz/definicje–jakosci/.

[22] http://www.jakosc.biz/definicje–jakosci/.

[23] http://www.bjk.uw.edu.pl/files/pdf/bergen.pdf.

[24] http://www.sea.edu.pl/

Aims of the standards and clues are as follows:

- improvement of education offered to students in educational institution...;
- help to educational institutions in quality management and upgrading;
- help in justification their institutional autonomy;
- making the proper surrounding for the Quality Assurance Agency;
- letting the outside quality assurance be more transparent and easier to understand for all the interested[25];

ASD Certification Institute's E-learning Courseware is the most known outside institution that standardises the quality of trainings.

SUMMARY

Irrespective of the fact whether the authors of the courses attitude to their work is commercial or a hobby way, in order to come onto the market they must develop the teaching- learning units in accordance with e-learning standards. The following years will show if after the stagnation connected with the lack of SCORM development and the appearance of new alternatives (Common Cartridge, Tin Can or introduced by AICC CMI-5) one e-learning standard will be created or LMS producers will be forced to introduce a few incompatible standards. Regardless of this, putting the emphasis on metadata standard will be especially important so that learning-teaching units could be found online, not only on LMS platform. The standard is often omitted nowadays on account of additional time and expenses necessary to be incurred during the creation of courses.

[25] Standardy i wskazówki dotyczące zapewnienia jakości kształcenia w Europejskim Obszarze Szkolnictwa Wyższego, Europejskie Stowarzyszenie na rzecz Zapewnienia Jakości w Szkolnictwie Wyższym [p. 13], Helsinki 2005 r., http://www.bjk.uw.edu.pl/files/pdf/bergen.pdf.

E-LEARNING IN MUSEUM EDUCATION

Kinga Sorkowska-Cieślak

Abstract

One of the main functions of a museum is the educational function that can be implemented in many ways. The aim of the chapter is to present and analyze the presence of e-learning in museum education in museums in Poland. Studying the current educational offer in twenty Polish museums, an analysis of the present situation has been performed with the reference to the results of a research published in 2012 by the National Institute for Museums and Public. The article is also an attempt to answer the question whether during the last two years the situation concerning e-learning has changed, or whether there has been a kind of stagnation. There are also endeavours to answer the questions if e–leaning is needed to museums, to what extent and how it can be used by them.

Key words: e-learning, museum education, e–museum, distance learning in museum, innovative form of museums instruction, innovative method for teaching in museum

INTRODUCTION

The museum is an institution that collects, inspects and takes care of objects that have a certain artistic or historical value. Its goal among others is to inform about the values and contents of the collections and popularize the basic values of history, science and Polish and world's culture[1].

Thus, one of the basic functions of museums is the educational function. Museum education performed in the second half of the twentieth century and the first decade of the twenty-first century focused primarily on traditional methods, such as:

- Guided tours by a guide or other substantive employee on museum exhibitions;
- Museum lessons (e.g. history or art history);

[1] The Act of 21.11.1996 r. on museums,the primary source Dz. U. 2012 pos. 987, the secondary source Gofin.pl, http://www.przepisy.gofin.pl/przepisy,3,29,155,962,63097,20121001,art–1–4–przepisy–ogolne.html, available 1.12.2014.

- Workshops for children and youth;
- Workshop for the disabled;
- Lectures;
- Academic and scientific conferences;
- Educational Conferences.

These educational methods are still the basis of the educational offer in most museums in Poland, and also in Europe and in the world. Numerous educational offers of the contemporary museums set a good example of it, e.g. The Home Army Museum named after general Emil Fieldorf „Nil" in Krakow, The Historical Museum of the City of Krakow, The Saltworks Castle and Mine in Wieliczka, but also Museum of the History of Katowice, the Silesian Museum and others. In addition to these educational methods, various museums, for example The Ethnographic Museum in Krakow, The Regional Museum in Nowy Sacz, or The Regional Museum in Torun, also try to introduceinteractive offers such as games and plays.Both educational games and plays are realized within indoor exhibitions, but also outdoors.

A novelty in the museum education is the use of new technologies and e-learning courses.

In June 2012, the National Institute for Museums and Public Collections issued a report on the state of the museum education in Poland[2]. The report found a m. a discussion of the results of museum education, presentations, case studies and recommendations and forecasts for the development of museum education in Poland. The report was based on research carried out in two stages. The premise of the first stage was to collect quantitative data (at this stage as a result of surveys there were 446 responses obtained), in the second stage conducted in some 217 museums qualitative research.

In the breakdown of general results of the first stage of the study can be read that e-learning program for individual tourists is offered by 6 museums (of 446 museums), and for school groups by 5 museums (of 446 museums). In the report there is no information about names of museums.

In a report summarizing the first stage of the research[3] it is written:

"It is safe to say, however, that they are almost completely resistant to forms of distance learning using information technology and opportunities offered by the Internet today".

Among the recommendations in the full report it can be read:

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[2] Edukacja muzealna w Polsce, Sytuacja, kontekst, perspektywy rozwoju, Raport o stanie edukacji muzealnej w Polsce pod redakcją Marcina Szeląga, Narodowy Instytut Muzealnictwa i Ochrony Zbiorów, Muzeum Pałac w Wilanowie, Warszawa 2012.

[3] M. Szeląg, *Raport o stanie edukacji muzealnej w Polsce. Podsumowanie pierwszego etapu badań*, „Muzealnictwo" 2010, no 51, p. 34–46.

"Museums should also intensify their activities in the area of e-learning offer, preparing more educational projects in virtual space."

How does e-learning offer of museums look two years after the publication of this report? Do the most famous and popular museums in Poland provide this kind of museum education?

METHOD

Educational offer located on the websites of selected museums in Polandwere analyzed. Most museums were selected from 446 museums surveyed in the report on the state of the museum education in Poland, and other museums were added. Institutions of various types and themes located throughout the countrywere chosen:

- The Royal Castle in Warsaw (https://www.zamek-krolewski.pl/);
- The Historical Museum of the City of Krakow (http://www.mhk.pl/);
- The National Museum in Krakow (http://www.muzeum.krakow.pl/);
- The Home Army Museum named after general Emil Fieldorf „Nil" in Krakow (http://www.muzeum-ak.pl/);
- The Saltworks Castle and Mine in Wieliczka (http://muzeum.wieliczka.pl/);
- The Auschwitz-Birkenau State Museum (http://pl.auschwitz.org/);
- The Museum of King Jan III's Palace at Wilanów (http://www.wilanow-palac.pl/);
- The Museum of Jozef Pilsudski in Sulejowek (http://www.muzeumpilsudski.pl/);
- The Silesian Museum in Katowice (http://www.muzeumslaskie.pl/);
- The Museum of History of Katowice (http://www.mhk.katowice.pl/);
- The Regional Museum in Nowy Sacz (http://www.muzeum.sacz.pl/);
- The Regional Museum in Torun (http://www.muzeum.torun.pl/);
- The Warsaw Rising Museum (http://www.1944.pl/);
- The Museum of Warsaw (http://muzeumwarszawy.pl/);
- The Museum of the Origins of the Polish State (http://mppp.pl/);
- The National Museum in Gdansk (http://mng.gda.pl/);
- The Archaeological Museum in Krakow (http://www.ma.krakow.pl/);
- The Archdiocesan Museum in Krakow (http://www.muzeumkra.diecezja.pl/);
- The National Maritime Museum in Gdansk (http://www.nmm.pl/);
- The Central Fire Service Museum in Myslowice (http://www.cmpmuzeum.pl/);
- The National Museum in Kielce (http://mnki.pl);

- The National Museum of Przemysl Land in Przemyśl (http://www.muzeum.przemysl.pl/);
- The National Museum of Agriculture and Agri-Food Industry in Szreniawa (http://www.muzeum-szreniawa.pl);
- The National Museum in Warsaw (http://www.mnw.art.pl);
- The National Museum in Wroclaw (http://www.mnwr.art.pl);
- The Historical Museum of the City of Tarnobrzeg in Tarnobrzeg (http://www.mhmt.pl);
- The Historical Museum in Ełk (http://www.mhe-elk.pl);
- The Historical Museum in Przasnysz (http://www.muzeumprzasnysz.pl);
- The Historical Museum in Sanok (http://www.muzeum.sanok.pl);
- The Museum of the City of Lodz in Łódź (https://www.muzeumlodz.pl);
- The City Museum of Wroclaw in Wrocław (http://www.muzeum.miejskie.wroclaw.pl);
- The Museum of Independence in Warsaw (http://muzeum-niepodleglosci.pl);
- The Museum in Bielsko-Biała (http://muzeum.bielsko.pl);
- Wielkopolska Independence Museum in Poznań (http://www.muzeumniepodleglosci.poznan.pl);
- The Czestochowa Museum in Czestochowa (http://www.muzeumczestochowa.pl);
- The Upper Silesian Museum in Bytom (http://muzeum.bytom.pl);
- The Stanislaw Fischer Museum in Bochnia (http://www.muzeum.bochnia.pl);
- The Władysław Orkan Museum in Rabka-Zdrój (http://www.muzeum-orkana.pl);
- The Lublin Museum in Lublin (http://www.muzeumlubelskie.pl);
- The Jan Dekert Lubusz Museum in Gorzów Wielkopolski (http://www.muzeumlubuskie.pl);
- The Masovian Museum in Płock (http://www.muzeumplock.eu);
- The Museum of the City Myslowice in Mysłowice (http://www.muzeummyslowic.pl);
- The City Museum in Racibórz (http://muzeum.raciborz.pl);
- The City Museum in Sosnowiec (http://www.muzeum.org.pl);
- The City Museum in Tarnowskie Góry (http://www.muzeumtg.pl);
- The City Museum in Zabrze (http://www.muzeum-miejskie-zabrze.pl);
- The City Museum in Żywiec (http://www.muzeum-zywiec.pl);
- The Vistula Museum in Kazimierz Dolny (http://www.mnkd.pl);

- The Leon Wyczółkowski District Museum in Bydgoszcz (http://muzeum.bydgoszcz.pl;)
- The District Museum in Rzeszów (http://www.muzeum.rzeszow.pl).

Each educational offer found on the website for every chosen museums was analyzed, examined whether the museum had in its offer e-learning courses, and if not, whether it had a multimedia materials on-linefor self-study. In addition, attention was drawn to the availability of digitized collections, so as to a visitor could get familiar with the exhibits remotely.

RESULTS

It turns out that from the aforementioned museums, only few have in its offer e-learning courses.

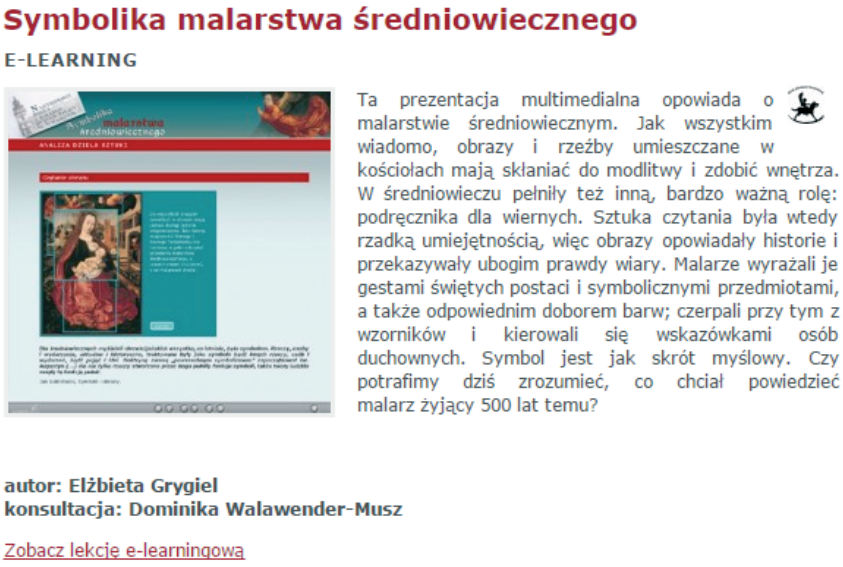
The Museum of Palace in Wilanow directs web vortal, which combines informational functions with some knowledge promotion and a presentation of research results. Vortal, located at http://wilanow-palac.pl/, presents knowledge in the form of articles, videos, multimedia, photo albums and e-learning. The prepared content may be a part of preparations for a visit in the museum, it enables to complement the knowledge, as well as it can be an independent, virtual visit in the museum and history lesson.

The museum today offers 31 e-learning lessons[4] and a lot of multimedia[5], and the project itself and the websiteare gradually developed. All lessons are prepared in anopen form, accessible to all internet users browsing the portal resources.

[4] The Museum of King Jan III's Palace at Wilanow, http://wilanow–palac.pl/szukaj?b=1200&q=&t[]=7, access 1.12.2104.

[5] The Museum of King Jan III's Palace at Wilanow, http://wilanow–palac.pl/szukaj?b=1200&q=&t[]=5, access 1.12.2014.

Figure 18. Sample e-learning lesson from the website of the Museum of Palace in Wilanow



The courses concern the Old Polish culture and history, and each lesson is prepared using a variety of e-learning tools, including these interactive ones. The lessons also include quizzes and additional literature, enabling to broaden the knowledge on a chosen topic.

Education on the vortal is not only served by strictly e-learning courses. There are also lot of multimedia, which despite being defined as e-learning, can function as such.

Figure 19. Sample multimedium from the website of the Museum of Palace in Wilanow

In addition to the open contents accessible to all, the vortal offers also closed, paid e-learning courses for teachers. At the moment one course has been prepared on Baroque art and is aimed at teachers of history and Polish language[6].

Another museum which is Polish pioneer of e-learning in museum education is the Auschwitz-Birkenau State Museum in Oswiecim. The museum has in its offer six lessons available for all on the website[7]. With those courses, internet users can prepare for a visit to the Memorial or broaden their knowledge after the visit. Also, people who have never been to the museum or are planning to visitit, can learn about the history of this place. All lessons include multimedia, interactive elements, along with tests that check the knowledge and references to the selected topic.

The Auschwitz-Birkenau Museum also organizes closed trainings on e-learning platform, targeted primarily on students, teachers and museum workers[8].

Another e-learning project is the Educational Platform of the Royal Castle in Warsaw, available at http://edukacjazamek.pl/.

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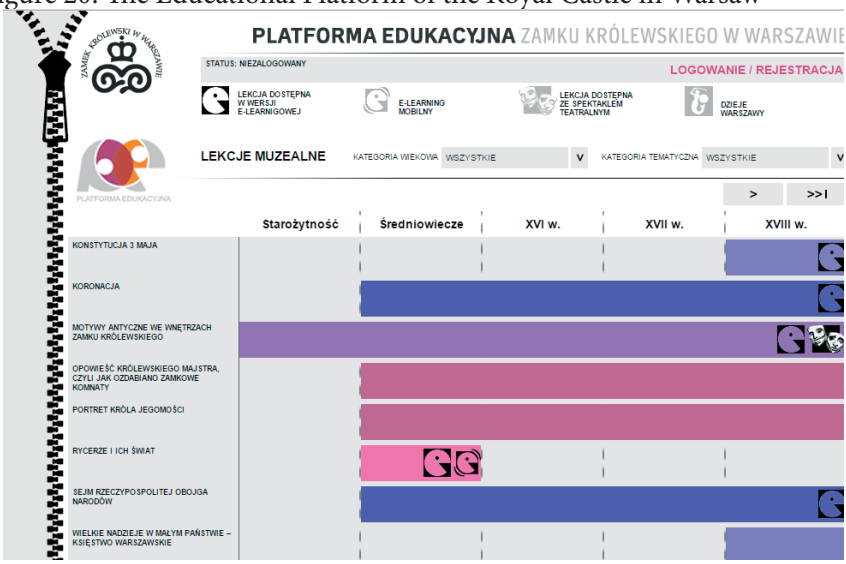
[6] The Museum of Palace in Wilanow, http://mobile.wilanow–palac.pl/article/kurs_e_learningowy_dla_nauczycieli_sztuka_baroku.html, access 1.12.2014.

[7] Auschwitz–Birkenau e-learning, http://pl.auschwitz.org/e/index.php?option=com_content&task=view&id=234&Itemid=82, access 1.12.2014.

[8] Auschwitz–Birkenau e-learning, http://pl.auschwitz.org/e/index.php?option=com_content&task=view&id=234&Itemid=82, access 1.12.2014.

Figure 20. The Educational Platform of the Royal Castle in Warsaw



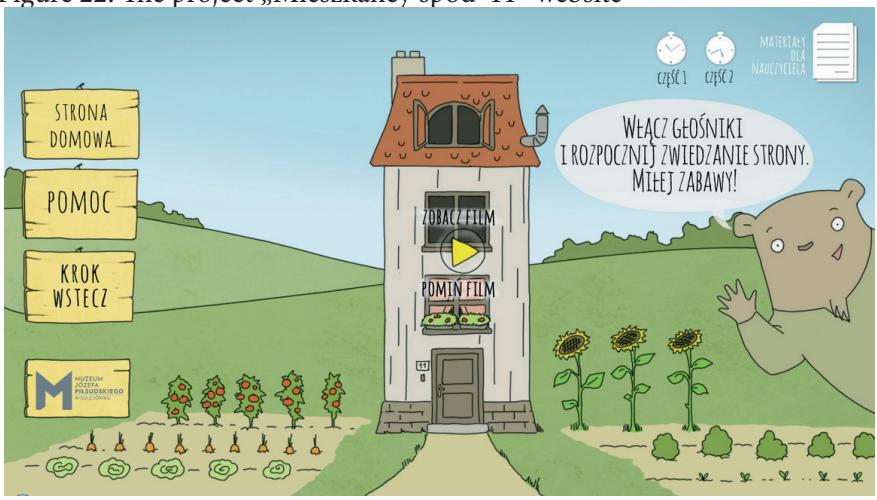
An unregistered platform user can access nine museum lessons, supplemented by games and exercises. Schools can choose from dozens of lessons,which number is constantly growing. The service is aimed primarily at teacherswiththe referenceto the core curriculum attached to each lesson. Some lessonsare also available in a mobile version.

Among the multimedia content of the Museum of the Royal Castle there is a noteworthy online interactive game, about the Empire style in France.

Figure 21. On-line game KancelariaSztabowa, https://www.zamek-krolewski.pl/flash/kancelaria (access: 3.02.2015)

An interesting project was carried out by the Museum of Jozef Pilsudski in Sulejowek. This is an educational website „Mieszkańcy spod Jedenastki”[9] (Residensts from Eleven), available at http://www.mieszkancyspod11.pl/, and prepared for the youngest elementary school students. The main element of the page is the animated film „Mieszkańcy spod Jedenastki” and activities on the page help understand the message of the film and introduce the basic issues of patriotic education and Polish history.

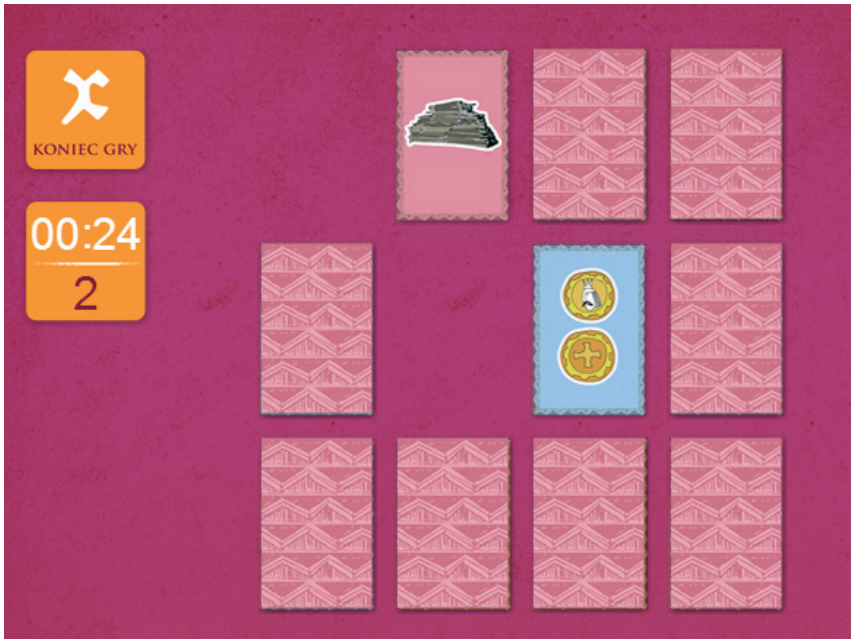
Figure 22. The project „Mieszkańcy spod 11” website



The Museum of the Origins of the Polish State does not have in its offer e-learning lessons, but among multimedia educational materials on the website, you can find an on-line „memory” type game, where the game is to combine pairs of historical figures and monuments.

[9] The Museum of Jozef Pilsudski website – resources for teachers http://www.mieszkancyspod11.pl/materialy/materialy.html, access 1.12.2014.

Figure 23. MEMO game, The Museum of the Origins of the Polish State website[10]



Picture 1. MEMO game, The Museum of the Origins of the Polish State website[11]

Another project worth discussing, however not present on the test list of museums, is a project of Malopolska's Virtual Museumsavailable at http://muzea.malopolska.pl/. It is not a website of any museum, but a project presenting resources of many museums. As it is written on the project website:

"Malopolska'sVirtual Museums is an exceptional initiative in Poland. It helps present valuable and significant resources to the culture on the Internet[12]."

and

„Within the project, the Regional Digitalisation Workshop and a website have been created. On the website one can admire more than 700 digitalised exhibits for which up until now museum showcases and warehouses have been their natural setting. Exhibits have been selected from their collections by Malopolska's museums, following consultations with the project Council of Experts.

[10] Memo – The Museum of the Origins of the Polish State, http://edukacja.mppp.pl/games/memo/, access 1.02.2015.

[11] Memo – The Museum of the Origins of the Polish State, http://edukacja.mppp.pl/games/memo/, access 1.02.2015.

[12] The Malopolska's Virtual Museums http://muzea.malopolska.pl/en/wmm, access 1.12.2014.

Because the majority of them are presented as three-dimensional images, it will be possible not only to learn the rich history of these exhibits but also to see them up close, and to learn every tiny detail about them, without any fear of destroying precious objects or violating museum etiquette.

Non-obvious links, inspirational contexts, and extensive educational materials are distinctive features of the website. Thanks to them, time spent on the Internet can be used to learn in some entertaining surroundings. On the website, there are cross-sectional presentations prepared by specialists or enthusiasts of a given field who recall numerous extraordinary stories concerning the collections. It will be possible to see proprietary collections created by people of culture and art, and find inspiration in guidebooks that encourages a creative interpretation of the heritage. Thanks to the search capabilities, the website will be able to group exhibits and will mention the museums they come from. It will also be possible to create private collections of works of art, browse through theme presentations and play the role-playing game, Time Defenders. Malopolska's Virtual Museums is the first museum website in Poland using gamification to create an innovative and attractive form of contact with culture users[13]."

The project is worth touching on as it is the first one in Poland devoted to the digitalization of exhibits in 3D. Besides, it is not only a catalogue of some items but it also contains extensive descriptive materials as well as some other links that make it an interesting and comprehensive source of information.

A similar project is the Digital Cultural Heritage- Digitalisation platform for museum collections in the region of Malopolska:

„The key objective of the project Digital Cultural Heritage – creation of a platform for digitalisating museumcollections in the region of Malopolska" is to increase the accessibility of museum collections on-line by creating a common website shared by seven major institutions of culture located in the region of Malopolska. Building a durable network of cooperation between the project partners will be instrumental in protecting and promoting their cultural goods with the help of modern technologies.

A website shared by all the project partners is supported by a single database software solution to study and interpret Malopolska's collection, and applies uniform standards for object description. The process of digitalisation by photographing, scanning and microfilming of the most valuable cultural resources has enhanced the common Internet base, which offers both essential and academic information about selected items from the museums' holdings. Professional equipment purchased as part of the project was used

[13] Portal Wirtualne Muzea Małopolski http://muzea.malopolska.pl/en/wmm, access 1.12.2014.

in the process of digitalisation in order to ensure the required quality of digital images, as well as the archiving and safety of therecords[14]."

The leader of this project is the National Museum in Krakow.

The digitalization of parts of their collections was also made by the Historical Museum of Krakow. This museum has 14 branches, modern website[15] rich in information, rich educational offer for different age groups, but among the materials on the website there is a lack of multimedia educational materials. The Digital Thesaurus complements this shortage:

„In the first part, we have selected the 2D resources – the flat exhibits: photographs, postcards, prints, drawings, set design and maps. More than 18 800 exhibits, or artefacts as they have been called in recent years in museum nomenclature, have been selected for digitalization within the framework of the project. Exhibits from three rich Museum collections have been selected to be transferred into the „digital dimension". The collections include: old photograph of Krakow, theatrical and graphic exhibits. The exhibits selected for digitalization represent about 20% of the collection of the Historical Museum of Krakow[16]."

Table 12. Museum lessons, e-learning and multimedia on the surveyed museums websites.

No.	The name of the museum	Museum lessons	e-learning	Multimedia resources	Others
1.	The Royal Castle in Warsaw	yes	yes	yes	radio dramas, on-line game
2.	The Historical Museum of the City of Krakow	yes			digitalization of collections
3.	The National Museum in Krakow	yes			digitalization of collections
4.	The Home Army Museum named after general Emil Fieldorf" Nil" in Krakow	yes			digitalization of collections
5.	The Saltworks Castle and Mine in Wieliczka	yes		yes	

[14] Digital Cultural Heritage http://www.kultura.malopolska.pl/web/guest/project, access 2.02.2015.

[15] The Historical Museum of the City of Krakow http://www.mhk.pl/, access 1.12.2014.

[16] The Historical Museum of the City of Krakow http://www.mhk.pl/35, access 1.12.2014.

6.	The Auschwitz–Birkenau State Museum	yes	yes		resources for teachers
7.	The Museum of King Jan III's Palace at Wilanów	yes	yes	yes	on-linegame
8.	The Museum of Jozef Pilsudski in Sulejowek	yes	yes		
9.	The Silesian Museum in Katowice	yes			digitalization of collections
10.	The Museum of History of Katowice	yes			
11.	The RegionalMuseum in Nowy Sacz	yes			
12.	The Regional Museum in Torun	yes			
13.	The Warsaw Rising Museum	yes			audiobooks, audioguides
14.	The Museum of Warsaw	yes			
15.	The Museum of the Origins of the Polish State	yes		yes	on-linegame
16.	The National Museum in Gdansk	yes		yes	on-line games, e-publica-tions, digita-lization of collections
17.	The Archaeological Museum in Krakow	yes			virtual walk, digitalization of collections
18.	The Archdiocesan Museum in Krakow				digitalization of collections
19.	The National Martime Museum in Gdansk	yes			virtual walk, digitalization of collections
20.	The Central Fire Service Museum in Myslowice	yes			digitalization of collections
21.	The National Museum in Kielce	yes			on-line games
22.	The National Museum of Przemysl Land in Przemyśl	yes			

23.	The National Museum of Agriculture and Agri–Food Industry in Szreniawa	yes			
24.	The National Museum in Warsaw	yes		yes	
25.	The National Museum in Wroclaw	yes			
26.	The Historical Museum of the City of Tarnobrzeg in Tarnobrzeg	yes			
27.	The Historical Museum in Ełk	yes			
28.	The Historical Museum in Przasnysz	yes			
29.	The Historical Museum in Sanok	yes		yes	
30.	The Museum of the City of Lodz in Łódź	yes		yes	
31.	The City Museum of Wroclaw in Wrocław	yes			virtual tours
32.	The Museum of Independence in Warsaw	yes			digitalization of collections
33.	The Museum in Bielsko–Biała	yes			
34.	Wielkopolska Independence Museum in Poznań				
35.	The Czestochowa Museum in Czestochowa	yes		yes	
36.	The Upper Silesian Museum in Bytom	yes		yes	
37.	The Stanislaw Fischer Museum in Bochnia	yes			
38.	The Władysława Orkan Museum in Rabka–Zdrój	yes			
39.	The Lublin Museum in Lublin	yes			
40.	The Jan Dekert Lubusz Museum in Gorzów Wielkopolski	yes			

41.	The Masovian Museum in Płock	yes			
42.	The Museum of the City Myslowice in Mysłowice	yes		yes	
43.	The City Museum in Racibórz	yes		yes	panoramas
44.	The City Museum in Sosnowiec	yes			
45.	The City Museum in Tarnowskie Góry	yes		yes	panoramas
46.	The City Museum in Zabrze	yes		yes	
47.	The City Museum in Żywiec	yes			
48.	The Vistula Museum in Kazimierz Dolny	yes			
49.	The Leon Wyczółkowski District Museum in Bydgoszcz	yes		yes	
50.	The District Museum in Rzeszów	yes			

CONCLUSIONS

From the surveyed museums, only four mentioned above have in its offer strictly e-learning courses. Other museums have in most cases on their websites Education tab, where the main item is usually the museum lessons and lectures. Among the surveyed museums, only one do not have in its offer museum lessons. Five of thesurveyed museumshave on their websites rich multimedia content and educational games or downloads. Nine museums also have virtual versions of exhibitions and digitalized collectionson their websites.

Summing up the offers of surveyed museums, it can be concluded that they focus their educational role on traditional museum lessons for schools. The use of modern technology is the most widely implemented in the form of digitalization of collections, to which certainly the EU and ministerial funds contributed, and which could be used for this purpose.

So what makes e-learning so unpopular in Polish museums?

From the feedback obtained from museum professionals with many years of working experience in educational research department, it follows that the basic problem is the lack of sufficient funds to implement new technologies

to a museum, which is caused by low expenditure on museums and culture from the state budget or individual municipal or provincial authorities.

The lack of sufficient funds for museums causes limitations in the implementation of new technologies for museums and museum education, which is visible particularly in urban museums in small towns. some resistance or fear of implementation of modern technologies has been another problem faced by modern solutions in museum education.

In a quoted earlier report on museum education in Poland[17], it is also written:

"E-learning or digital databases are treated with some suspicion by museum educators in Polandas a lot of attention is paid to working with exhibitions of their own institutions .The educators think that the new technologymoves away the foundations on which their belief about teaching in museums is based."

A good sign is that museums see the necessity of enhancing and updatingtheir websites, that can be noticed inthe Historical Museum of the City of Krakow or the National Museum in Krakowsites recently modernized and built in responsive technology.

So is e-learning really needed for museums?

To answer this question, you should consider how e-learning is or may be used in museums.

One possibility is the use of e-learning within the museum lessons. E-learning course can be a perfect introduction to a lesson carried out in a museum or be a complementary and summarizing element of the knowledge afterany conducted lessons. Pupils who often see the museum as a boring and outdated institution can trace and acquire multimedia material available from a PC or tablet intently. These lessons then can be offered in a closed access in a package with a museum lesson. Examples of such applications are the lessons offered by the Museum of Palace inWilanow and the Museum of the Royal Castle in Warsaw.

Another form is open e-learning, available from the website for all virtual visitors, in order to offer more attractive and systematize knowledge on a chosen topic. This course can also be a form of extending a temporary exhibition. Examples of such applications are lessons on the Auschwitz-Birkenau State Museumwebsite.

E-learning courses in a closed form can also be used by museums to conduct paid courses, for example, for teachers, which are run in a stationary form by a lot of museums.

[17] *Edukacja muzealna w Polsce, Sytuacja, kontekst, perspektywy rozwoju, Raport o stanie edukacji muzealnej w Polsce,* pod red. M. Szeląga, Narodowy Instytut Muzealnictwa i Ochrony Zbiorów, Muzeum Pałac w Wilanowie, Warszawa 2012.

SUMMARY

In the past few years little interest connected with the possibilities of using e-learning in museum education has been noticed. Museums still focus on using museum lessons in their educational offer. Nevertheless, they more and more seem to notice the virtual visitor and they are now trying to use wider information technology, mostly to digitize collections and making them available online. Getting familiar with the possibilities of new technologies and making changes in thinking of culture personnelmaycause e-learning to be a more preferable form used in museum education.

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