

# Prednosti digitalizacije u obrazovanju Transfer znanja kao moderna globalna migracija

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# Advantages of Digitization in Education - Knowledge Transfer as Modern Global Migration

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## Abstract

*Modern forms of education and business development are characterized by more sophisticated software solutions and general computerization. The newly emerging situation triggered by the COVID-19 pandemic created a need to apply new forms of communication and accelerated the penetration of technologies into all systems, including the education system. This topic is intensively considered at all levels and in various fields of science and technology. In the process of educating modern personnel in the knowledge society, the focus is on the development of modern skills. Technology has become an important factor within the innovative educational process, and it encourages teamwork and the correlation of multiple participants from remote locations. It has a great potential, and the aim of this paper is to assert its advantages. Education should be adapted to the needs of users, and this is achieved through reforms. Access to highly sophisticated IT solutions is necessary in today's business, while the education process occasionally slows down and is somewhat inert, but there are many factors that accelerate this delay. The scientific contribution of this work is manifested in the potential and possibilities of developing knowledge, skills and competences through new technologies in education, where dislocation is no longer an obstacle but an opportunity to connect, thus becoming an efficient transfer of knowledge. Migration enhanced by going to more developed and advanced environments with the desire to strengthen competences through the application of new technologies is not lost human potential, or brain drain. One can study in the home country via e-learning. The main goal is to develop quality modules for knowledge transfer as a modern global migration.*

**Key words:** digitization in education; e-learning; knowledge society; knowledge transfer; lifelong education; migrations.

## **Introduction**

In the modern functioning of society - the knowledge society, the development of business has imposed the need to apply new forms of technology, and it is of particular importance to developed countries. Lifestyle, habits and technology are closely intertwined. Consequently, the education process lags behind modern technologies. The first aspect considered in this paper is the importance and need for education, which has become a key factor for every individual at a personal and professional level, while lifelong learning has become a daily need for every citizen. In lifelong learning, we develop various abilities and skills with the aim of fulfilling ourselves personally, participating actively in the society we live in, and at the same time being successful in the constantly changing world of work. Our personal skills and knowledge are also a catalyst for innovation, productivity and competitiveness. Technology is used in teaching in many ways: as a teaching aid, a medium for online teaching, in teamwork with several students, to check knowledge and determine the material, as a form of teaching staff training and a quick and efficient source of information through databases and e-books. In the scientific context, it has been seen to what extent the application of modern software solutions depends on the educational process and how much influence modern technology has on the individual in the educational process. In today's conditions of development of automation, computerization and robotization, a modern man increasingly appears in the function of a technician and controller who supervises their work (Vizjak & Vizjak, 2015). The second aspect of the paper focuses on the increasing degree of use of software aids within the educational process. Accordingly, the level of classroom equipment and classrooms themselves have improved. The newly created situation caused by the COVID-19 pandemic caused major changes in the field in a very short time, where along with online classes, television entered the daily teaching process. The impact of IT development can be seen in the creation of electronic learning system (e-learning) to improve the effectiveness and efficiency of learning, as well as to improve the competence and quality of human resources (Alfina & Irfan, 2020). In the future, the use of modern technologies and sophisticated equipment in the teaching process should make the educational process more creative, speed it up, and facilitate its accessibility with the gradual abolition of the established norms of "chalk and blackboard" as a synonym for education. Online education constitutes a new professional configuration, a possibility of the effective use of teaching and the effective construction of knowledge from another spatial-temporal logic, without losing sight of the objective conditions of social networks, in particular new forms of social connections brought out by wider social changes, strongly marked by a technological presence (Martinis & Lopes dos Reis, 2009). Digital stratification produces new groups of vulnerable people, the so-called "new poor". The third aspect of the paper is the observation of migration as a transfer of knowledge. Through e-learning, the migrant is not "lost" human capital, but a person who continues to have close contact with the home country. Lifelong education, a

desire for further advancement and development of his skills bring him back to the bench, but this time in a simpler and more economical way. Through these three key aspects, the goal of this paper is defined - the importance and advantages of using new technologies in order to achieve a more efficient modern society in the age of rapid changes, and our migration, which refers to a growing number of sovereign users of such services every day.

## **The role of the european reference framework**

Modern Europe has placed special emphasis on education, which it observes through the prism of personal, social, and economic meaning. Through the European Reference Framework accepted in 2006, the programs such as “Training for success in life”, “Project learning for younger adults” and “Digital literacy for adults” are implemented (Kuran, 2012). The European Reference Framework requires the members of the European Union to apply them consistently in their educational practice in accordance with the last key competence, cultural awareness and expression. It is necessary to take into account the cultural, linguistic and ultimately economic diversity of the members of the European Union. The objectives of the European Reference Framework are:

- to determine and define the key competencies that are necessary in the knowledge society for personal fulfillment, active citizenship, social cohesion and employment;
- to support the work of the member states, whose goal is to ensure that young people, by the end of initial education, develop basic skills to the level where they will be able to do their job, to lead their own life, for further study and professional life, and that in adulthood they are enabled to develop and modernize key competences throughout life;
- to provide a European-level reference framework for policy makers, teachers and trainees in training programmes.

The purpose is to develop the abilities that citizens need for personal fulfillment, active participation in society, active citizenship and employment in the knowledge society. In 2004, the European Commission expressed its strong support for the development of distance learning (e-education) in all EU member states in the document “E-learning Action Plan 2004-2006”. As of 2012, more than one billion people worldwide have been learning online (ITAcademy, n.d.). In Europe, 5.2 million students attended at least one online form of professional education, while 70% of university administrations believe that this form of education is crucial for their development (Bratonja Martinović, 2015).

## **The need for education reform**

Through education reforms, the need for innovation and modernization of the teaching process has been emphasized. Changes and reforms were implemented with gradual application of modern technological innovations in the teaching and educational process. The role of education is related to the issue of equality, fairness,

and the influence of power relations. Each theory defines in its own way the role and functions of education and the impact of education on reducing the marginality of some social groups and increasing their social power. The intention is to implement changes so that educational institutions are in step with the environment, and the graduates have the necessary level of knowledge and competence to meet the requirements of the modern workplace. Considering that the focus is on the development of the individual, the impact of politics on educational practice should be minimal, and therefore education should be ideologically neutral. Learning based on multimedia technology is becoming more and more popular, which is in line with the galloping computerization of society and life in the so-called “information era”. Science has become one of the most important activities within every developed society and it directs the further development of the economic system of every country (UNESCO 2002). Scientific and teaching activities are largely dependent on the acceptance and further development of modern IT technologies. Cross-border disciplines, as well as the interconnection of sciences, represent additional enrichment of all sciences, and cooperation should be constantly expanded and deepened (Grandić, 2007). The development of the Croatian science and teaching system throughout history was strongly influenced by the traditional understanding of certain concepts and was greatly influenced by individuals who imposed their own way of thinking. All this had a significant impact on the development of Croatian science and its constant lagging behind developed countries, especially in conditions when the value of scientific achievements was determined by the political power of individuals. There are two significant education reforms in Croatia: Šušteršič's education reform and the changes brought about by the Bologna Process in higher education. The creation of the Croatian university information network CARNet - Croatian Academic and Research Network, which started operating in 1992, was the first significant attempt to connect the Croatian national scientific information network with the world network INTEL. In this way, the need was created to purchase new IT devices, mainly PCs, which are connected in a unique national IT system that involves all higher education institutions in Croatia. The next step was to connect this system with European and world networks of this type, such as EIN, EVRONET and INTEL, in order to enable the exchange of scientific achievements with other scientific institutions, their storage or subsequent use. In 2003, the Croatian government adopted the “e-Croatia 2007 Program” as part of the activities for joining the EU. Its aims included speeding up the process of informatization and restructuring of state administration, achieving the conditions for increasing the competitiveness of Croatian companies and raising the quality and efficiency of services to citizens (Central State Office for e-Croatia, 2006). One chapter in that document is dedicated to e-education. Today, the higher education system uses the Referral Center, i.e., the Multimedia Center, which operates within the University Computer Center and helps with the further development of

information technologies in higher education systems. According to the national report on the implementation of the strategy Information and communication technology - Croatia in the 21st century, of the Ministry of Science and Technology, a project called ICT Curriculum is being implemented as part of more recent technological reforms (Ministry of Science and technology, 2003). The implementation of technologies in the educational process guarantees the acquisition of necessary skills for the knowledge society (Salehi et al., 2014). The further direction of education development goes in the following directions: ensuring the transfer of new specific knowledge and its continuity of development, encouraging specific skills and abilities, educating students for research and acceptance of new technologies, and fostering humanistic and democratic values and multicultural activities within the educational process. The feasibility of these concepts largely depends on the individual's ability to navigate in an endless network of information, the ability to find appropriate types of information and select them, and the ability to evaluate information and communication skills (Andjić 2007, p. 127). In Croatia, there are several dozen software tools (courseware tools) to support forms of e-learning offered by CARNet: AHyCo, aTutor, BSCW, Bazaar, Blackboards, Claroline, Eledge, FirstClass, IBM Workplace Collaboration Services, Ilias, IntraLearn, Lotus Learning Space, Lotus SameTime, Manhattan, Moddle, WebCT, eCollege, and eLearner. In Croatia, there is a tendency to accept the American ADL/SCORM standard Advanced Distributed Learning Initiative as guidelines for the further development of e-learning (web CARNet). The system of higher education in Croatia shows a lack of market orientation and places insufficient emphasis on user orientation. Further development of e-learning can address this problem. Migrants are a potential target market group of users.

## **Factors of further development of the education system**

In order to realize new ideas, it is necessary to implement changes in the system. Changes are necessary and should be implemented effectively. They must be motivated by political action and decisions. Certain financial resources are also needed, which must be provided for the use of modern technological teaching aids. The process of decentralization of financing in Croatia began on July 1, 2001, when part of the financial rights and obligations (about 20%) were transferred to counties and cities (Ministry of Education and Sports, 2002). Education reform initiated by the competent state body or ministry implies dependence between the influence of the teaching process organization in the educational institution and activities, and this dependence is an integral part of the education reform. Education reforms initiated by combined initiatives are supported by the establishment of local education groups, through various types of partnerships with the manufacturing sector and cooperation with university institutions. Greater focus is placed on the market component of e-learning development through a wide variety of new potential users, where physical presence

will no longer be an obstacle. The application of technological innovations requires new investments in a certain level of equipment, the lease of software license, and the teaching staff training. The primary disadvantage of using technology is its availability, which is set as a prerequisite for use (Pejić Papak & Krmptović, 2016).

Adopted technological achievements strongly influence the expansion of the educational services market of the educational institution. Scientific and teaching staff agree on the need to apply modern technologies and introduce innovations into the teaching process at all levels of the education system. Distance learning is an innovative form of learning and teaching in which the physical presence of students and teachers is not realized, but the learning and the teaching process takes place in a virtual environment with the support of digital technologies. The overlapping of the needs of the business world with available knowledge, competences and skills on the market and the application of modern software aids in the teaching process simplifies the learning process itself and speeds it up. It is clear that new technologies will become an integral part of the education cycle even today, and especially in the future. The design of e-learning systems should take into account the diversity of participants in terms of learning styles, their prior knowledge, culture and self-organization, internationalization, content enrichment and shifting the boundaries of the learning context (Delrio & Ficsher, 2007). This makes them more competitive and the need to join them will be created. The strategy of bringing back the people who “dropped out of the education system” to enable them to complete the desired formal education or give it up, opens a new market niche of users, and among them are migrants, whose number is increasing every day. Therefore, they are not permanently lost human capital, a brain drain, because the distance learning system connects them again with their home country, where the costs of education are much more favorable than at universities in the west.

## **E-learning**

E-learning is using electronic devices in the process of learning (Long, 2003; Mason & Rennie, 2006). E-learning would be the use of a computer network or the web for delivery of learning (Piskurich, 2003, and could be considered as a generic term that includes other types of learning by using electronic devices, computer-based learning, online learning, and mobile learning. E-learning could be realized with or without the teacher's help (Bognar, 2014). It is based on the use of electronic devices in the learning process. In the past, this meant the use of analogue devices, whereas today mostly digital devices are used, among which particularly important are computers and mobile devices connected to the Internet (Bognar, Gajger & Ivić, 2016). E-learning combines two dimensions: pedagogy and technology (Babić & Etinger, 2019). Individuals exposed to the influence of information presented by different media of e-environment will construct different personal understandings about the world that surrounds them (Matijević, 2014).

Pedagogical advantages and characteristics of e-learning (Aničić & Barlovac, 2010) are:

- Flexibility of time and place of attending classes. Students can study at a time that suits them best (after work, for example) and in a place that suits them best (for example, at home);
- Quick adaptation of students to this type of learning. With such methods, students are not afraid of making mistakes, unlike in a classic lecture in a hall;
  - Data consistency. All participants are given access to the same material;
  - Possibility of measuring learning efficiency. Online learning enables precise monitoring of student achievement. It is possible to determine exactly how much time is spent on learning, and whether its productivity increases;
  - Reduction of learning costs. According to data from foreign organizations, this way of learning achieved 40-60% savings in large companies. According to research, IBM alone realized savings of nearly \$200 million in one year using computer-assisted learning;
  - Individualization of learning. The student can follow the lessons at a pace that suits him, without the pressure of adapting to the group;
  - Better memorization of content. Individual learning and learning in smaller groups result in better memorization of the content.

Other advantages of e-learning include: improvement of the visualization of the teaching content; the teacher updates the content with new knowledge more easily and with better quality; there is a more practical and faster knowledge verification through online tests that will only give grades after taking the tests; distance is no longer an obstacle; the increased number of enrolled participants does not impair the quality of teaching; there is the possibility of adapting to the student's personal learning style (the student learns by organizing time independently, personalized approach); it enables broader access to education (groups of students with special needs); lifelong learning of the staff occurs independently of time and place, and modern education is provided that will enable entrance into the integrated virtual space of education (Crnjac Milic, Martinovic & Fercec, 2009). The introduction of e-learning initially causes higher costs, but with the increase in the number of students, they decrease. In the specific case, this means that by introducing e-learning, Croatian faculties will be able to increase the number of students, while maintaining the existing quality and without a significant increase in costs (Sinković & Kaluđerčić, 2006). E-learning also implies interactive teaching and learning, cooperation with other students, participation in discussions and exchange of experiences that contribute to the overall process. This study system enables students to interact with themselves, with the teaching material, as well as with other students and the teacher. The most developed form of e-learning is the one in which teaching is completely based on the application of information and communication technologies. All activities in such systems, including knowledge tests, take place without direct contact (Dukić & Mađarić, 2012). Faculties around the world, especially market-oriented ones, will develop the same strategy and thereby



attract those interested in the e-learning system. Reputable European faculties such as Oxford and Cambridge, as well as the prestigious American MIT - Massachusetts Institute of Technology, Harvard, Berkley, and American Public University offer the possibility of online studies for those who speak English well (Bratonja Martinović, 2015). They will try to conquer new markets in order to amortize their own costs and generate additional profits. Focusing on our people abroad, migrants, is a good choice of market niche that our faculties should recognize.

Higher education institutions in Croatia can start conducting e-learning after entering their studies in the Register. In order to obtain a permit for conducting e-learning, it is necessary to meet the criteria prescribed by the document Criteria and procedures for the evaluation of online studies. Studies can be partially or completely conducted online (Ministry of Science and Education, 2016). Table 1 presents a list of higher education institutions from the Register of study programs for e-learning. The Health Polytechnic in Zagreb and the Applied Economics and Informatics study at the Juraj Dobrila University in Pula will begin work in the academic year 2023/2024.

Table 1  
Higher education institutions that have a permit for e-learning, 2023.

Name of the study	Provider	Type of study
Judaic Studies (double major)	University of Zagreb, Faculty of Humanities and Social Sciences	Undergraduate university studies
Judaic Studies (double major)	University of Zagreb, Faculty of Humanities and Social Sciences	Graduate university studies
Informatics	Juraj Dobrila University of Pula	Undergraduate university studies
Informatics	Juraj Dobrila University of Pula	Graduate university studies
Applied economics	Juraj Dobrila University of Pula	Undergraduate university studies
Applied economics	Juraj Dobrila University of Pula	Graduate university studies
Business economy	University of Rijeka, Faculty of Economics	Undergraduate university studies
Business economy	University of Rijeka, Faculty of Economics	Graduate university studies
Physiotherapist	Polytechnic of Health	Undergraduate university studies
Nursing	Polytechnic of Health	Undergraduate university studies
Sustainable development of tourism	University of Rijeka, Faculty of Tourism and Hospitality Management	Graduate university studies
Kinesiology	University of Split, Faculty of Kinesiology	Specialist graduate professional study
Kinesiology	University of Split, Faculty of Kinesiology	Undergraduate university studies

Source: Ministry of Science and Education, 2023.

Table 2 gives a list of private higher education institutions from the Register of study programs for e-learning. The European Business School Zagreb has been denied a permit to carry out higher education activities, and the Ministry of Science and Education is in the process of adopting further measures.

Table 2

*Private higher education institutions that have a permit for e-learning, 2023.*

Name of the study	Provider	Type of study
Digital marketing	Algebra University College	Undergraduate professional study
Digital marketing	Algebra University College	Specialist graduate professional study
Public sector management	University of Applied Sciences with public rights Baltazar Zaprešić	Undergraduate professional study
Business and management	University of Applied Sciences with public rights Baltazar Zaprešić	Specialist graduate professional study
Economy of entrepreneurship	European Business School Zagreb	Undergraduate professional study

Source: Ministry of Science and Education, 2023.

The research was conducted in such a way that all the mentioned higher education institutions that have a permit to conduct e-learning study programs were contacted with an inquiry regarding the potential market niches they are targeting with this type of study. None of the higher education institutions have detected or kept statistics on student labor migrants as potential participants in such studies. In the study program of kinesiology, the Faculty of Kinesiology of the University of Split points out that they have students who have migrated for work. While faculties around the world recruit students in this way and thus expand their market potential, our faculties do not recognize labor migrants as potential students. An effort should be made to expand the offer to new markets in order to amortize their own costs and achieve additional profit. Focusing on our people abroad, migrants, is a good choice of market niche that our faculties should recognize.

## The need for lifelong education

Lifelong education lasts throughout life and is a response to changes. It requires the motivation of people to get involved. Lifelong learning refers to the overall learning activity during life in order to improve knowledge, skills and competences, and has four basic goals: individual development, personal satisfaction, active social inclusion and better employability (Vekić, 2015). The new social, professional and economic needs of the individual and the community have modernized education as a multidirectional, dynamic and active process of exchanging knowledge, opinions and the needs of everyone involved in its process: from the individual who enrolls in college, all the way to the highest state, European and world institutions in the educational, economic and social sectors. In this way, modern society as a whole

jointly positions education and nurtures knowledge as its fundamental driving value and actively builds and develops a global knowledge society as its most successful brand (Vrban, 2014). Interdisciplinary and synthetic research on adult learning is often referred to as cognitive science in professional literature. Cognitive sciences include various scientific disciplines, from neurology, psychology, sociology to pedagogy and andragogy. With the computerization of the system and rapid changes in trends, continuous education becomes necessary and ubiquitous, and people turn to lifelong education, that is, the period of learning that takes place after the end of formal education. Career development is becoming more and more dynamic, therefore lifelong learning is considered crucial for individuals, organizations and especially the country if they want to remain competitive. The desire for advancement is of key importance, whether to improve the current position or to change careers. The reasons for which lifelong education can be considered important, not only for the individual but also for society as a whole are: improving capacity, increasing satisfaction and passion, greater employability, economic necessity, maintaining power and dominance, social sensitivity, and applicability and maintenance of well-being (Vander Ark, 2017). The factors that influence participation in adult education (Radovan, 2012) are: macro level (systemic arrangement), meso level (structural conditions), and micro level (subjective and social factors). Billet (2018) defines lifelong education as a set of experiences created in the social world, manifested in the form of social suggestions that include certain forms, norms and practices. Educational programs are aimed at achieving certain outcomes, such as the development of certain skills, norms, and good practices.

## **Main characteristics of lifelong education**

According to the Report on Future Jobs issued by the World Economic Forum, several key skills for the modern employee are listed, and the new skills are divided into 4 groups (Whiting, 2020):

- problem solving - includes the skills of analytical thinking and innovation, critical thinking and analysis, creativity, originality and reasoning, problem solving and giving ideas;
- independent management – includes active learning skills, stress tolerance and flexibility;
- working with people - includes leadership skills;
- technology use and development – includes skills in technology use, monitoring and control, and design and programming.

## **Migrations as knowledge transfer**

Migrations motivated by going to more developed, more advanced environments and better conditions for work and advancement are increasingly common forms of economic migration. They are often time-limited, i.e., the individual leaves for a certain period of time with the idea of returning to home country in due time. Migrants are

important actors in global activities who achieve long-term development benefits through the flow of ideas and business connections, while qualified migrants form a link between the country of origin and international networks and enable the flow of knowledge, which is important both for receiving countries and for countries of origin. The migration of a highly educated segment of population is a complex field of individual decision-making in interaction with systemic factors, whereby systemic factors such as time (short-term and long-term), information (level, selectivity), 'network of contacts' (networking before and after migration), and exploitation of intellectual resources (local and global government policies) shape individual decisions (Adamović & Mežnarić 2003, p. 143). The decisive push factors in the highly qualified population's decision to emigrate are economic, legal, education and political, while pull factors refer to opportunities for better working conditions, better quality of life, and advancement (Troskot, Prskalo & Šimić Banović 2019, p. 878). Highly educated migrants employed in positions below their qualifications are a great loss for the country of emigration, and they do not represent a great gain for the country of immigration either (Božić 2014, p. 294). The negative effects for regions from which highly educated human capital leaves are: the reduction of the amount of human capital, the reduction of opportunities to create and use advanced technologies, the reduction of economic growth, and the reduction of specialized knowledge within the observed area and many others (Cavallini et al., 2018). These are individual migrations, i.e., a form of migration in the center of which, as a unit of analysis, is the autonomous decision-maker, who, if he is under pressure in some cases, can determine and describe the parameters of his decision at almost any moment of the decision-making process: work, family, professional position, quality of life, cultural transfer, and politics (Le Bras, 2003). A person who has left his homeland should not be considered permanently lost capital, because by networking contacts he can still be effectively incorporated into the home community and transfer his newly acquired knowledge and experiences, and distance learning and new technologies will help in this process. The Croatian diaspora represents an area where the market of Croatian educational institutions can expand. It is estimated that the number of Croats in the diaspora is roughly equal to that in the homeland and this is a large group shown in Table 3. Contact with the homeland and education through e-learning would certainly attract a significant number of new students (Sinković & Kaluđerčić, 2006).

Table 3  
*External migration of the population of the Republic of Croatia 2011-2021.*

Year	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Moved abroad	12,699	12,877	15,262	20,858	29,651	36,436	47,352	39,515	40,148	34,046	40,424
EU	2,582	3,787	4,652	12,393	19,431	28,150	38,432	30,119	27,378	17,272	20,884

Source: Croatian Bureau of Statistics, 2022.

## Conclusion

The need for education is a daily need of a modern man, and his desire for education and awareness of comprehensive personality development should never leave him. Educational processes carried out within educational institutions reflect the level of development of the respective community in which they operate. The required level of knowledge that is obtained in educational institutions is always lagging behind the demands of the market, therefore lifelong education is necessary. As this phenomenon has been observed for a long time, efforts are being made to improve the teaching process as much as possible, introducing the most modern technological aids and making individuals aware that they were and will remain competitive in the labor market only if they invest in their knowledge and skills. E-learning has a great potential and is becoming an increasingly powerful tool that perfectly complements traditional teaching methods. Distance is no longer an obstacle and thus becomes more accessible and economical. Knowledge transfer has become faster and more dynamic, with lower costs, providing migrants with another active link with their homeland, where they can continue to improve through lifelong education programs, specialize and thus strengthen their competencies in the global labor market. The research established that our faculties do not recognize labor migrants as potential students. The limitations of this work are incomplete statistics and insufficient monitoring of our emigrants abroad. Likewise, former students maintain weak contact with their home faculties, so it is difficult to obtain information.

## References

- Adamović, M., & Mežnarić, S. (2003). Potencijalni i stvarni "odljev mozгова, znanstvenog pomlatka iz Hrvatske: empirijsko istraživanje" [Potential and actual "brain drain, scientific youth from Croatia: empirical research"]. *Revija za sociologiju*, 34(3-4), 143- 160.
- Alfina, A., & Irfan, R. (2020). Analysis of E-learning implementation using Human Organization Technology approach (HOT) Fit Models. *Journal of Physics: Conference Series*, 1456(1). <https://doi.org/10.1088/1742-6596/1456/1/012058>
- Andić, D. (2007). Obrazovanje učitelja i suvremena obrazovna tehnologija u području odgoja i obrazovanja za okoliš [Teacher education and modern educational technology in the field of environmental education]. *Održivi razvoj, Informatologia*, 40.
- Aničić O., & Barlovac B. (2010). *Učenje na daljinu: e-obrazovanje* [Distance learning: e-education] [Paper presentation]. Tehnika i informatika u obrazovanju, 3. internacionalna konferencija. Tehnički fakultet Čačak. Retrieved from [http:// www.ftn.kg.ac.rs/konferencije/tio2010/PDF/RADOVI/532%20Anicic%20-%20 Ucenje%20na%20daljinu%20-%20 E-obrazovanje.pdf](http://www.ftn.kg.ac.rs/konferencije/tio2010/PDF/RADOVI/532%20Anicic%20-%20Ucenje%20na%20daljinu%20-%20E-obrazovanje.pdf)
- Babić, S., & Etinger, D. (2019). Važnost razvoja kompetencija za E-učenje kod visokoškolskih nastavnika za primjenu hibridnog okruženja za učenje [The importance of developing E-learning competencies in higher education teachers for the application of a hybrid learning environment]. *Metodički obzori*, 14(1). <https://doi.org/10.32728/mo.14.1.2019.01>

- Billett, S. (2018). Distinguishing lifelong learning from lifelong education. *Journal of Adult Learning, Knowledge and Innovation*, 2(1), 1-7. <https://doi.org/10.1556/2059.01.2017.3>
- Bognar, B. (2014). Theoretical Backgrounds of E-Learning. *Croatian Journal of Education*, 18(1), 225-256. <https://doi.org/10.15516/cje.v18i1.1475>
- Bognar, B., Gajger, V., & Ivić, V. (2016). Constructivist E-learning in Higher Education. *Croatian Journal of Education*, 18(Sp.Ed.No.1), 31- 46. <https://doi.org/10.15516/cje.v18i0.2221>
- Božić, S. (2014). Hrvatska migracijska politika: od skice prema strategiji, migracije i razvoj Hrvatske [Croatian migration policy: from sketch to strategy, migration and the development of Croatia]. *Podloga za hrvatsku migracijsku strategiju*. Hrvatska gospodarska komora.
- Bratonja Martinović, L.J. (2015). Oxford i Harvard iz vlastite sobe: Sve je više onih koji do diplome dolaze na – daljinu [Oxford and Harvard from your own room: More and more people are getting their degrees remotely]. *Novi list*. <https://www.novolist.hr/ostalo/sci-tech/znanost/oxford-i-harvard-iz-vlastite-sobe-sve-je-vise-onih-koji-do-diplome-dolaze-na-daljinu/>
- Cavallini S., Soldi R., Matteo L., Alina Utma M., & Errico B. (2018). Addressing brain drain: The local and regional dimension. *Commission for Social Policy, Education, Employment, Research and Culture in EU*. European Committee on the Regions. <https://cor.europa.eu/en/engage/studies/Documents/addressing-brain-drain/addressing-brain-drain.pdf>
- Crnjac Milic, D., Martinovic, G., & Fercec, I. (2009). E-learning: Situation and perspectives. *Tehnički vjesnik*, 16(2).
- Delrio, C., & Fischer, T. (2007). HELIOS: Redefining e-Learning Territories. *Elearning Papers*, No 4.
- Dukić, D., & Mađarić, S. (2012). Online learning in Croatian tertiary education. *Tehnički glasnik*, 6(1).
- Grandić, R. (2007). Prilozi uvodu u pedagogiju [Contributions to the introduction to pedagogy] Trendovi u učenju na daljinu. *Savez pedagoških društava Vojvodine*. [http://www.it-akademija.com/ITAkademija-Trendovi\\_123\\_15\\_53](http://www.it-akademija.com/ITAkademija-Trendovi_123_15_53)
- Kuran, M. (2012). Temeljne sposobnosti u Europskom referentom okviru [Basic competences in the European reference framework]. *Ključne kompetencije odraslih*, Andragoški centar Republike Slovenije.
- Le Bras, H. (2003). *L'adieu aux masses: démographie et politique*. Editions de l'Aube.
- Long, H. B. (2004). E-learning: An introduction [Paper presentation]. Getting the most from online learning, Pfeiffer, 7-21.
- Martinis, A. E., & Lopes dos Reis, R. (2009). *Virtual teaching in a society of learning*, [Paper presentation]. International Cross-Disciplinary Conference on Web Accessibility (W4A), 84–87. <https://doi.org/10.1145/1535654.1535675>
- Mason, R., & Rennie, F. (2006). *E-learning: The key concepts*. Routledge.
- Matijević, M. (2014). Learning in the e-environment: new media and learning for the future. *Libellarium*, 7(1). <https://doi.org/10.15291/libellarium.v7i1.200>
- Ministry of Education and Sports [Ministarstvo prosvjete i sporta] (2002). *Projekt Hrvatskog odgojno-obrazovnog sustava za 21. st.* [Project of the Croatian educational system for the 21st century]. <https://vlada.gov.hr/UserDocsImages/2016/Sjednice/Arhiva/19.%20-%2010.2.a.pdf>

- Ministry of Science and Education [Ministarstvo znanosti i obrazovanja] (2016). *Kriteriji i postupci za vrednovanje online studija [Criteria and procedures for evaluation of online studies]*. <https://www.nvzvotr.hr/images/documents/Kriteriji%C2%A0i%20postupci%20za%20vrednovanje%20online%20studija.pdf>
- Ministry of Science and Education [Ministarstvo znanosti i obrazovanja] (2023). *Upisnik studijskih programa koji imaju važeću dopusnicu za izvođenje u online obliku u RH. [Register of study programs that have a valid permit for execution in online form in the Republic of Croatia]*. <https://hko.srce.hr/usp/pretrazivanje?naziv=&vrsta=on&vrsta=on&vrsta=on&vrsta=on&vrsta=on&vrsta=on&vrsta=on&nositelj=0&izvodac=0&vlasnistvo=0&strucniNazivText=&strucniNaziv=-1&sifraUpisnik=&podrucje=0&polje=0&mjesto=0&tipLokacije=0&jezikIzvođenja=0&nacinImplementacije=on&nacinImplementacije=on&nacinImplementacije=on&nacinImplementacije=O&nacinImplementacije=on&akGodIzvođenja=0&stem=0&jednopedmetni=on&jednopedmetni=on&stemStipendije=0&nacinIzvođenja=on&nacinIzvođenja=on>
- Ministry of Science and technology [Ministarstvo znanosti i tehnologije] (2003). *Nacionalno izvješće o provedbi strategije „Informacijska i komunikacijska tehnologija - Hrvatska u 21. stoljeću” [National report on the implementation of the strategy “Information and communication technologies - Croatia in the 21st century”]*, <http://www.mzt.hr/>
- Pejić Papak, P., & Krmpotić H. (2016). Poučavanje primjenom suvremene tehnologije u obrazovanju [Teaching by using modern technology in education]. *Život i škola, Časopis za teoriju i praksu odgoja i obrazovanja*, 62(3).
- Piskurich, G. M. (2003). Editor's introduction: What is e-learning? The AMA handbook of e-learning: Effective design, implementation, and technology solutions. *AMACOM*, 1-10.
- Radovan, M. (2012). *Motivacijske karakteristike ranjivih odraslih [Motivational characteristics of vulnerable adults]*. Ključne kompetencije odraslih. Andragoški centar Republike Slovenije.
- Salehi, H., Shojeaa, M., & Sattar, S. (2014). *Using e-learning and ICT courses in educational environment. A review; English language teaching*, 8(1). <https://doi.org/10.5539/elt.v8n1p63>
- Sinković, G., & Kaluđerčić, A. (2006). E-učenje – izazovi Hrvatskom visokom školstvu [E-learning - challenges to Croatian higher education]. *Ekonomska istraživanja*, 19(1).
- Central State Office for e-Croatia [Središnji državni ured za e-Hrvatsku] (2006). *Operativni plan provedbe Programa e-Hrvatska 2007. [Operational plan for the implementation of the e-Croatia 2007 Program]*. [https://rdd.gov.hr/UserDocsImages/MURH\\_migracija%20s%20weba/Arhiva%20projekata/Operativni\\_plan\\_eHrvatska\\_za\\_2007.pdf](https://rdd.gov.hr/UserDocsImages/MURH_migracija%20s%20weba/Arhiva%20projekata/Operativni_plan_eHrvatska_za_2007.pdf)
- Croatian Bureau of Statistics [Državni zavod za statistiku]. <https://podaci.dzs.hr/hr/statistika-u-nizu/>
- CARNet (2022) Što su alati za e-obrazovanje [What are e-learning tools]. <http://edupoint.carnet.hr/referalni/obrazovni/oca/definicija.html>
- Troskot, Z., Prskalo, M. E., & Šimić Banović, R. (2019). Ključne odrednice iseljavanja visokokvalificiranog stanovništva: slučaj Hrvatske s komparativnim osvrtom na nove članice EU-a [Key determinants of emigration of the highly qualified population: the case of Croatia with a comparative view of the new EU members]. *Zbornik radova Pravnog fakulteta u Splitu*, 56(4), 877-904. <https://doi.org/10.31141/zrpf.2019.56.134.877>
- UNESCO (2002). *Teaching and Learning for Sustainable Future – A Multimedia Teacher Education Programme*. [http://www.unesco.org/education/tlsf/9/Europska\\_komisija](http://www.unesco.org/education/tlsf/9/Europska_komisija)

- Vander Ark, C. (2017). *10 Reasons Why Lifelong Learning is the Only Option*. Getting Smart.
- Vekić, M. (2015). Obrazovanje u novome ruhu: cjeloživotno učenje i obrazovanje odraslih [Education in a new guise: lifelong learning and adult education]. *Hrvatski jezik: znanstveno-popularni časopis za kulturu hrvatskoga jezika*, 2(3), 5-14.
- Vizjak, A., & Vizjak, M. (2015). *Education as s precondition of further successful tourism development* [Paper presentation]. Društvo i tehnologija 2015 – dr. Juraj Plenković.
- Vrban, S. (2014). Brendiranje obrazovanja [Branding of education]. *Andragoški glasnik*, 18, 45 – 60. <https://hrcak.srce.hr/file/219572>
- Whiting, K. (2020). These are the top 10 job skills of tomorrow – and how long it takes to learn them. *World Economic Forum*. <https://www.weforum.org/agenda/2020/10/top-10-work-skills-of-tomorrow-how-long-it-takes-to-learn-them/>

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# Prednosti digitalizacije u obrazovanju – Transfer znanja kao moderna globalna migracija

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## **Sažetak**

*Suvremeni oblici edukacija te razvoj poslovanja okarakterizirani su sofisticiranijim softverskim rješenjima te sveopćom informatizacijom. Novonastala situacija s pandemijom koronavirusa nametnula je potrebu primjene novih oblika u komunikaciji te ubrzala penetraciju tehnologija u sve sustave tako i u sustav obrazovanja. O ovoj temi intenzivno se promišlja na svim razinama te područjima grana znanosti i tehnologija. Potreba obrazovanja suvremenoga kadra u društvu znanja, stavlja fokus na razvoj suvremenih vještina. Tehnologija postaje važan čimbenik unutar inovativnoga obrazovnog procesa, potiče timski rad i korelaciju više polaznika s udaljenih lokacija. Veliki je potencijal upotrebe digitalizacije u obrazovanju, a cilj je ovoga rada ustvrditi njezine prednosti. Obrazovanje treba prilagoditi potrebama korisnika, a to se postiže reformama. Pristup visoko sofisticiranim informatičkim rješenjima u današnjem poslovanju je neophodan dok proces edukacije sporadično kaska i nešto je tromiji, no postoje mnogi „puch up” faktori koji će umanjiti taj raskorak. Znanstveni doprinos ovoga rada očituje se u potencijalu i mogućnostima razvoja znanja, vještina i kompetencija kroz nove tehnologije u obrazovanju pri čemu dislociranost više nije prepreka, već mogućnost spajanja i time postaje efikasni transfer znanja. Migracije potencirane odlaskom u razvijenije i naprednije sredine sa željom jačanja kompetencija primjenom novih tehnologija nije izgubljeni ljudski potencijal – odljev mozgova. U matičnoj zemlji može se školovati putem e-učenje. Glavni cilj jest ukazati na širenje tržišnoga potencijala mogućnosti školovanja ili cjeloživotnoga obrazovanja kroz razvijanje kvalitetnih modula za transfer znanja.*

**Ključne riječi:** cjeloživotno obrazovanje; digitalizacija u obrazovanju; društvo znanja; e-učenje; migracije; transfer znanja.

## **Uvod**

Suvremeno funkcioniranje društva - društva znanja i razvoj poslovanja nametnuo je potrebu primjene novih oblika tehnologija, a u razvijenim zemljama one su od posebne

važnosti. Stil života i navike te tehnologija u intenzivnoj su sprezi. Proces obrazovanja posljedično zaostaje za suvremenim tehnologijama. Prvi aspekt ovoga rada jest važnost i potreba za obrazovanjem koje postaje ključni faktor svakoga pojedinca na osobnoj i profesionalnoj razini, a cjeloživotno učenje nasušna postaje potreba svakoga građana. U cjeloživotnom učenju razvijamo različite sposobnosti i vještine sa svrhom da se osobno ispunimo, aktivno sudjelujemo u društvu u kojem živimo, a istovremeno smo uspješni u svijetu rada koji se neprestano mijenja. Naše osobne sposobnosti i znanje također su katalizator inovativnosti, produktivnosti i konkurentnosti. Tehnologija u nastavi koristi se na više načina kao nastavno pomagalo, medij za *online* nastavu, u timskom radu s više polaznika, za provjeru znanja te utvrđivanje gradiva, za edukacija nastavnoga osoblja te brzi i efikasan izvor informacija kroz baze podataka i e-knjige. U znanstvenom razmatranju sagledava se u kojoj mjeri ovisi primjena suvremenih softverskih rješenja na obrazovni tijek i koliki utjecaj imaju suvremene tehnologije na pojedinca u obrazovnom procesu. Suvremeni se čovjek u današnjim uvjetima razvoja automatizacije, računalizacije i robotizacije sve više pojavljuje u funkciji tehničara i kontrolora koji nadgleda njihov rad (Vizjak i Vizjak, 2015). Drugi aspekt rada fokusira se na činjenicu sve većega stupnja korištenja softverskih pomagala unutar obrazovnoga procesa te se sukladno tome poboljšala razina opremljenosti učionica i kabineta. Novonastala situacija uzrokovana pandemijom koronavirusa u kratkom je vremenu na tom području prouzrokovala velike pomake pri čemu je uz *online* nastavu i televizija ušla u svakodnevni nastavni proces. Razvojem IT-a i izgradnjom elektroničkog sustava učenja (e-learning) poboljšala se učinkovitosti učenja što se odrazilo na kompetenciju i kvalitetu ljudskih resursa (Alfina & Irfan, 2020).

Vremenski tijek korištenja suvremenih tehnologija te sofisticirane opreme u nastavnom procesu trebala bi obrazovni proces učiniti kreativnijim, ubrzati ga, olakšati njegovu dostupnost postupnim ukidanjem ustaljenih normi „krede i ploče” kao sinonima za obrazovanje. Online obrazovanje predstavlja novu profesionalnu konfiguraciju, mogućnost učinkovitog nastavnog procesa i prijenosa znanja, ne gubeći iz vida nove oblike komunikacije posredstvom društvenih mreža snažno obilježene tehnologijom (Martinis & Lopes dos Reis, 2009). Digitalna raslojenost proizvodi nove skupine ranjivih osoba, takozvane „nove siromašne”. Treći aspekt rada jest promatranje migracija kao transfer znanja. Kroz e-učenje migrant nije „izgubljen” ljudski capital, nego osoba koja i dalje ima bliski kontakt s matičnom zemljom. Cjeloživotno obrazovanje, želja za daljnjim napredovanjem i rad na svojim vještinama vraćaju ga u klupe, ali ovoga puta na jednostavniji i ekonomičniji način. Kroz ova tri ključna aspekta definiran je cilj ovoga rada – važnost i prednosti korištenja novih tehnologija kako bi se postiglo učinkovitije suvremeno društvo u doba brzih promjena, a naši državljani koji su emigrirali koje je svakim danom sve više, postaju suvereni korisnici takvih usluga. Ovim istraživanjem utvrđeno je da naša visoka učilišta razvojem e-učenja nisu detektirali naše radne migrante kao potencijalne polaznike, premda je jedan od strateških ciljeva osiguravanje širega pristupa.

## Uloga Europskog referentnog okvira

Moderna je Europa poseban naglasak stavila na obrazovanje koje promatra kroz prizmu osobnoga, socijalnoga i ekonomskoag značenja. Kroz Europski referentni okvir prihvaćen 2006. godine provode se programi „Osposobljavanja za uspjeh u životu”, „Projektno učenje mladih odraslih” i „Informatička pismenost odraslih” (Kuran, 2012). Europski referentni okvir od članica Europske unije zahtijeva da ih dosljedno primjenjuju u svojoj obrazovnoj praksi u skladu sa zadnjom ključnom kompetencijom, kulturnom sviješću i izražavanjem. Potrebno je uzeti u obzir i kulturnu, jezičnu te, na kraju krajeva, gospodarsku raznolikost članica Europske unije. Ciljevi Europskoga referentnog okvira:

- utvrditi i definirati ključne kompetencije koje su u društvu znanja potrebne za osobno ispunjenje, aktivno građanstvo, socijalnu koheziju i zapošljavanje
- podržati rad država članica čiji je cilj osigurati da mladi ljudi do kraja primarnoga obrazovanja razviju temeljne sposobnosti do razine kada će biti sposobni za obavljanje profesije, za vođenje vlastita života, za daljnje učenje i profesionalni život i da im u odrasloj dobi bude omogućeno da razvijaju i moderniziraju ključne kompetencije cijeli život
- osiguravanje referentnoga okvira na europskoj razini za kreatore politika, učitelje i polaznike u programima za osposobljavanju.

Svrha je razvoj sposobnosti koje su građanima potrebne za osobno ispunjenje, aktivno sudjelovanje u društvu, aktivno građanstvo i zaposlenje u društvu znanja. Europska komisija koja je 2004. godine u svojem konceptu „E-learning Action Plan 2004. - 2006.” snažno podržava razvoj učenja na daljinu, odnosno e-obrazovanja u svim državama članicama EU. Od 2012. godine više od milijardu ljudi širom svijeta učilo je *online* (ITAcademy, n.d.). U Europi 5,2 milijuna studenata polazilo barem jedan *online* oblik stručnoga obrazovanja, 70 % sveučilišnih uprava smatraju da je ovaj oblik edukacije ključan za njihov razvoj (Bratonja Martinović, 2015).

## Potreba obrazovne reforme

Kroz obrazovne reforme ističe se potreba inovacija i osuvremenjivanje nastavnoga procesa. Promjene i reforme provodile su se uz postupnu primjenu suvremenih tehnoloških inovacija u nastavnom i obrazovnom procesu. Uloga obrazovanja povezana je s pitanjem jednakopravnosti, pravednosti, utjecajem odnosa moći. Svaka teorija na svoj način definira ulogu i funkcije obrazovanja te utjecaj obrazovanja na smanjivanje marginalnosti nekih društvenih skupina i povećanje njihove društvene moći. Promjene se provode kako bi obrazovne institucije bile ukorak s okolinom, a završeni polaznik imao potrebnu razinu znanja i kompetencija zahtjevima suvremenoga radnog mjesta. S obzirom na to da se radi o razvoju pojedinca, utjecaj politike na obrazovnu praksu trebao bi biti najmanji, a samim tim obrazovanje bi trebalo biti ideološki neutralno. Učenje koje se temelji na multimedijskoj tehnologiji i takvom pristupu postaje sve

popularnije, što je u skladu s galopirajućom informatizacijom društva i životom u tzv. „informatičkoj eri”. Znanost postaje jedna od najznačajnijih djelatnosti unutar svakog razvijenoga društva te usmjerava daljnji razvoj gospodarskoga sustava svake zemlje (UNESCO 2002). Znanstveno-nastavno djelovanje uvelike je ovisno o prihvaćanju i daljnjem razvoju suvremenih informatičkih tehnologija. Granične discipline, kao i međusobna povezanost znanosti predstavljaju dodatno obogaćivanje svih znanosti, a suradnja se stalno treba proširivati i produbljivati (Grandić, 2007). Razvoj hrvatskoga znanstveno-nastavnoga sustava tijekom povijesti nalazio se pod snažnim utjecajem tradicionalnoga poimanja određenih shvaćanja te je bio pod prevelikim utjecajem pojedinaca koji su nametnuli svoj način razmišljanja. Sve je to imalo značajan utjecaj na razvoj hrvatske znanosti i njezino konstantno zaostajanje za razvijenim zemljama, posebice u uvjetima kada je vrijednost znanstvenih postignuća određivala politička snaga pojedinaca. Dvije su značajne reforme školstva u Hrvatskoj: Šušvarova reforma obrazovanja te promjene koje je donio bproces u visokome školstvu. Pokretanje hrvatske sveučilišne informacijske mreže CARNet (Croatian Academic and Research Network) koja je počela djelovati tijekom 1992. Godine, prvi je značajniji pokušaj povezivanja hrvatske nacionalne znanstvene informatičke mreže sa svjetskom mrežom INTEL. Na taj je način stvorena potreba nabave novih informatičkih uređaja, pretežito PC računala, koji su povezani u jedinstveni nacionalni informatički sustav koji je povezo sve visokoobrazovne institucije u Hrvatskoj. Daljnji korak bio je povezivanje stvorenoga sustava s europskim i svjetskim mrežama toga tipa kao što su EIN, EVRONET i INTEL, kako bi se omogućila razmjena znanstvenih ostvarenja s drugim znanstvenim institucijama, njihovo pohranjivanje ili naknadno korištenje. Hrvatska vlada je u okviru aktivnosti za pridruživanje EU-u 2003. godine usvojila „Program e-Hrvatska 2007.” sa svrhom ubrzanja procesa informatizacije i restrukturiranja državne uprave, ostvarenja uvjeta za povećanje konkurentnosti hrvatskih poduzeća i podizanja kvalitete i efikasnosti usluga građanima (Operativni plan provedbe Programa e-Hrvatska 2007, 2006). Jedno je poglavlje u tom dokumentu posvećeno e-obrazovanju. Danas se u visokoobrazovnom sustavu primjenjuje Referalni centar, tj. Multimedijalni centar koji djeluje unutar Sveučilišnog računarskog centra te pomaže pri daljnjem razvoju informacijskih tehnologija visokoobrazovnih sustava. Novije tehnološke reforme prema nacionalnom izvješću o provedbi strategije Informacijska i komunikacijska tehnologija – Hrvatska u 21. stoljeću Ministarstva znanosti i tehnologije provodi se i projekt pod nazivom „ICT kurikulum” (Ministarstvo znanosti i tehnologije, 2003). Implementacija tehnologija u obrazovni proces jamči usvajanje neophodnih vještina za društvo znanja (Salehi i dr., 2014). Daljnji smjer razvoja obrazovanja ide u sljedećim pravcima: osiguranje prijenosa novih specifičnih znanja i njegov kontinuitet razvoja, poticanje specifičnih vještina i sposobnosti, edukacija studenta za istraživanje i prihvaćanje novih tehnologija, njegovanje humanističkih i demokratskih vrijednosti te multikulturalno djelovanje unutar obrazovnoga procesa. Ostvarivost tih koncepcija uvelike ovisi upravo o sposobnosti pojedinca za snalaženje u beskrajnoj mreži informacija, sposobnosti

pronalaženja odgovarajućih vrsta informacija, njihovoj selekciji, sposobnosti vrednovanja i evaluacije, drugim riječima o informatičko-komunikacijskim vještinama (Anđić 2007, str. 127). U Hrvatskoj postoji nekoliko desetaka softverskih alata (*courseware tools*) za potporu oblicima e-učenja koje nudi CARNet : AHyCo, aTutor, BSCW, Bazaar, Blackboards, Claroline, Eledge, FirstClass, IBM Workplace Collaboration Services, Ilias, IntraLearn, Lotus Learning Space, Lotus SameTime, Manhattan, Moddle, WebCT, eCollege, eLearner. Također je vidljiva tendencija prihvaćanja američkoga ADL/SCORM standarda *Advanced Distributed Learning Initiative* kao smjernice za daljnji razvoj e-učanje (mrežni izbor CARNet ). Sustav visokoga školstva u Hrvatskoj bilježi nedostatak tržišne orijentacije i nedovoljno naglašene usmjerenosti na korisnika. Daljnji razvoj e-učenja može doskočiti tome problemu. Migranti su potencijalna ciljana tržišna skupina potencijalnih korisnika.

## Čimbenici daljnjega razvoja obrazovnoga sustava

Da bi se ostvarile nove zamisli, treba provesti promjene u sustavu. Promjene su potrebne i treba ih provoditi učinkovito. One moraju biti potaknute političkim djelovanjem i odlukama. Potrebna su i određena financijska sredstva koje je treba osigurati za primjenu suvremenih tehnoloških nastavnih pomagala. Proces decentralizacije financiranja u Hrvatskoj započeo je 1. srpnja 2001. godine, kada je dio financijskih prava i obveza (oko 20 %) prenesen na županije i gradove (Ministarstvo prosvjete i sporta, 2002). Obrazovna reforma koju su pokrenuli nadležni državni organi, odnosno ministarstva znači međuovisnost utjecaja organizacije nastavnoga procesa u obrazovnoj instituciji i aktivnosti te su sastavni dio reforme obrazovanja. Obrazovne reforme pokrenute kombiniranim inicijativama osnažuju se osnivanjem lokalnih obrazovnih skupina, kroz razne vrste partnerstva s proizvodnim sektorom te suradnjom sa sveučilišnim institucijama. Veći je fokus na tržišnoj komponenti razvoja e-učenja kroz široku paletu novih potencijalnih korisnika pri čemu fizička prisutnost više neće biti prepreka. Primjena tehnoloških inovacija zahtijeva nova ulaganja u određeni stupanj opremljenosti, zakup licence za *software*, a drugi je vid osposobljavanje nastavnoga osoblja. Primarni je nedostatak korištenja tehnologije u samoj dostupnosti što je istodobno i preduvjet njezina korištenja (Pejić Papak i Krmpotić, 2016).

Usvojena tehnološka postignuća snažno utječu na širenje tržišta obrazovnih usluga obrazovne institucije. Znanstveno i nastavno osoblje suglasni su o potrebi primjene suvremenih tehnologija te uvođenje inovacija u programe nastavnih procesa na svim razinama obrazovnoga sustava. Nastava na daljinu predstavlja inovativan oblik učenja i poučavanja u kojemu se ne ostvaruje fizička prisutnost učenika i učitelja, već se proces učenja i poučavanja odvija u virtualnom okružju uz podršku digitalnih tehnologija. Preklapanje potreba poslovnoga svijeta s dostupnim znanjima, kompetencijama i vještinama na tržištu te primjena suvremenih softverskih pomagala u nastavnom procesu pojednostavljuje sam proces učenja i ubrzava ga. Jasno je da će nove tehnologije već u današnjem vremenu, a u osobito u budućnosti, postati sastavi dio obrazovnoga ciklusa. Sustavi e-učenja trebaju se projektirati, tj. dizajnirati tako da uzimaju u obzir

različitosti polaznika glede stilova učenja, njihova predznanja, kulture i samoorganizacije, internacionalizacije, obogaćivanje sadržaja i pomicanje granica konteksta učenja (Delrio i Ficsher, 2007). Time postaju konkurentniji i stvorit će se potreba uključivanja u iste. Strategija vraćanja ljudi koji su „izašli iz sustava obrazovanja” radi završetka formalnoga željenog obrazovanja ili odustajanja od istoga, otvara novu *tržišnu nišu* korisnika kojima pripadaju i migranti kojih je svakim danom sve više. Stoga oni nisu trajno izgubljeni ljudski kapital, odljev mozgova jer sustavom učenja na daljinu opet ih se povezuje s matičnom zemljom pri čemu su troškovi obrazovanja znatno povoljniji nego na zapadnim sveučilištima.

## E-učenje

E-učenje je korištenje elektroničkih uređaja u procesu učenja (Long, 2003; Mason i Rennie, 2006). E-učenje je korištenje računalne mreže ili mreže za isporuku učenja (Piskurich, 2003). E-učenje može se smatrati generičkim pojmom koji uključuje druge vrste učenja korištenjem elektroničkih uređaja, učenje temeljeno na računalu, *online* učenje, mobilno učenje. E-učenje može se realizirati sa ili bez pomoći nastavnika (Bognar, 2014). E-učenje se temelji na korištenju elektroničkih uređaja u procesu učenja. Nekada je to značilo korištenje analognih uređaja, dok se danas uglavnom koriste o digitalni uređaji, među kojima su posebno važna računala i mobilni uređaji povezani na internet (Bognar, Gajger i Ivić, 2016). E-učenje spaja dvije dimenzije: pedagogiju i tehnologiju (Babić i Etinger, 2019). Pojedinci izloženi utjecaju informacija koje prezentiraju različiti mediji e-okruženja izgradit će različita osobna shvaćanja o svijetu koji ih okružuje (Matijević, 2014). Pedagoške prednosti i karakteristike e-učenja (Aničić i Barlovac, 2010):

- Fleksibilnost vremena i mjesta pohađanja nastave. Studenti se mogu posvetiti učenju u vrijeme kad im to najviše odgovara (nakon posla, npr.) te na mjestu koje im najviše odgovara (npr., kod kuće)
- Brzo prilagođavanje studenata na ovakav vid učenja. Uporabom ovakvih metoda studenti ne boje da će pogriješiti, za razliku od klasičnoga predavanja u dvorani.
  - Konzistentnost podataka. Svim se polaznicima omogućuje uvid u jednaki materijali
  - Mogućnost mjerenja efikasnosti učenja. *Online* učenje omogućuje precizno praćenje postignuća učenika. Može se točno odrediti koliko je vremena utrošeno na učenje te povećava li se njegova produktivnost.
  - Smanjenje troškova učenja. Prema podacima stranih organizacija ovakav način učenja ostvario je 40-60 % uštede kod velikih kompanija. Prema istraživanju, samo je IBM ostvario uštedu od gotovo 200 mil. USD u jednoj godini korištenjem učenja pomoću računala.
  - Individualizacija učenja. Polaznik može pratiti nastavu tempom koji mu odgovara, bez pritiska zbog prilagođavanja grupi.
  - Bolje pamćenje sadržaja. Individualno učenje i učenje u manjim cjelinama pogoduju boljem i kvalitetnijem pamćenju sadržaja.

Ostale prednosti e-učenja: poboljšanje vizualizacije nastavnih sadržaja, nastavnik lakše i kvalitetnije ažurira sadržaje sukladno novim spoznajama, praktičnija i brža provjera znanja *online* testovima koji će samo generirati ocjene po završetku pisanja istoga, udaljenost više nije prepreka, povećani broj upisanih polaznika neće narušiti kvalitetu nastave, mogućnost prilagođavanja osobnom stilu učenja studenta (student uči samostalno organizirajući vrijeme, personalizirani pristup), omogućava širi pristup obrazovanju (grupama studenata s posebnim potrebama), cjeloživotno učenje osoblja odvija se neovisno o vremenu i mjestu, suvremeno obrazovanje koje bi omogućilo ulazak u integrirani virtualni prostor obrazovanja (Crnjac Milic, Martinovic i Fercec, 2009). Uvođenje e-učenja u početku izaziva veće troškove, no porastom broja studenata oni se umanjuju. U konkretnom slučaju to znači da će uvođenjem e-učenja hrvatski fakulteti moći povećati broj studenata, uz zadržavanje postojeće kvalitete i bez značajnoga povećanja troškova (Sinković i Kaluđerčić, 2006). E-učenje znači i interaktivnu nastavu i učenje, suradnju s drugim studentima, sudjelovanje u raspravama i razmjeni iskustava koja doprinose ukupnom procesu. Ovakav sustav studiranja omogućuje interakciju sruđenta sa samim sobom, s nastavnim materijalom kao i s drugim polaznicima te nastavnikom. Najrazvijeniji je oblik e-učenja onaj u kojem je nastava potpuno temeljena na primjeni informacijskih i komunikacijskih tehnologija. Sve se aktivnosti u takvim sustavima, uključujući i provjere znanja, odvijaju bez neposrednoga kontakta (Dukić i Mađarić, 2012). Fakulteti širom svijeta naročito oni tržišno orijentirani razvijat će jednaku strategiju i time privlačiti zainteresirane sustavom e učenja. Ugledni europski fakulteti poput Oxforda i Cambridgea, kao prestižni američki MIT (Massachusetts Institute of Technology), Harvard, Berkley, **American Public University** nude mogućnost *online* studiranja za one koji dobro vladaju engleskim jezikom (Bratonja Martinović, 2015).

Visoko učilište u Hrvatskoj mogu započeti s izvođenjem e-učenja nakon upisa studija u Upisnik. Za dobivanje dopusnice za izvođenje e-učenja potrebno je ispuniti kriterije propisane dokumentom Kriteriji i postupci za vrednovanje *online* studija, studiji mogu djelomično ili u potpunosti izvoditi *online* nastavu (Kriteriji i postupci za vrednovanje online studija, 2016). U Tablici 1 daje se popis visokih učilišta iz Upisnika studijskih programa za e-učenje. Zdravstveno veleučilište u Zagrebu te studiji Primijenjena ekonomija i Informatika Sveučilišta Jurja Dobrile u Puli s *online* studijem započet će akademske godine 2023/24.

#### Tablica 1

U Tablici 2 prikazan je popis privatnih visokih učilišta iz Upisnika studijskih programa za e-učenje. Europskoj poslovnoj školi Zagreb izdana je uskrata dopusnice za obavljanje djelatnosti visokoga obrazovanja te je u tijeku donošenja daljnjih mjera Ministarstva znanosti i obrazovanja.

#### Tablica 2

Istraživanje je provedeno tako da su se kontaktirala sva navedena visoka učilišta koja imaju dopusnicu za izvođenje e-učenja s upitom o potencijalnim tržišnim nišama

na koje ciljaju takvom vrstom studija. Ni jedno od visokih učilišta nije detektiralo, niti vodi statistiku o studentima radnim migrantima kao potencijalnim polaznicima takvih studija. Na studiju kineziologije Kineziološki fakultet Sveučilišta u Splitu ističu da imaju studente koji su radno migrirali. Dok fakulteti diljem svijeta na ovaj način vrbuju studente i time šire svoje tržišne potencijale, naši fakulteti ne prepoznaju radne migrante kao potencijalne polaznike. To je jedan od načina da se ponuda proširi na nova tržišta kako bi se amortizirali vlastiti troškovi i ostvarila dodatna dobit. Usmjeravanje na naše ljude u inozemstvu, migrante, dobar je odabir tržišne niše koju trebaju prepoznati naši fakulteti.

## **Potreba za cjeloživotnim obrazovanjem**

Potreba za cjeloživotnim obrazovanjem odgovor na intenzivne promjene, a zahtijeva motivaciju ljudi da se uključe. Cjeloživotno učenje odnosi se na sveukupnu aktivnost učenja tijekom života kako bi se unaprijedila znanja, vještine i kompetencije te ima četiri osnovna cilja: razvoj pojedinca, osobno zadovoljstvo, aktivna društvena uključenost i bolja zapošljivost (Vekić, 2015). Nove društvene, stručne i ekonomske potrebe pojedinca i zajednice modernizirale su edukaciju kao višesmjernan, dinamičan i aktivan proces razmjene znanja, mišljenja i potrebe svih koji su uključeni u njezin proces: od pojedinca koji upisuje fakultet, pa sve do najviših državnih, europskih i svjetskih institucija u obrazovnom, ekonomskom i socijalnom sektoru. Na taj način, moderno društvo u cjelini zajednički pozicionira obrazovanje i njeguje znanje kao svoju temeljnu pokretačku vrijednost te aktivno izgrađuje i razvija globalno društvo znanja kao svoj najuspješniji brend (Vrban, 2014). Informatizacijom sustava i brzim promjenama u trendovima kontinuirano obrazovanje postaje neophodno i sveprisutno te se ljudi okreću cjeloživotnom obrazovanju, odnosno razdoblju učenja koje se odvija nakon završetka formalnoga obrazovanja. Razvoj karijere postaje sve dinamičniji, stoga se cjeloživotno učenje smatra ključnim za pojedince, organizacije i napose zemlju ako žele ostati konkurentni. Želja za napredovanjem je ključna bilo da se radi o poboljšanju postojećega položaja ili o promjeni karijere. Razloga zbog kojih se cjeloživotno obrazovanje može smatrati važnim, ne samo za pojedinca već i za društvo u cjelini: poboljšanje kapaciteta, povećanje zadovoljstva i strast, veća mogućnost zapošljavanja, ekonomska nužnost, zadržavanje moći i dominacije, društvena osjetljivost, primjenjivost i održavanje blagostanja (Vander Ark, 2017). Faktori koji utječu na sudjelovanje u obrazovanju odraslih (Radovan, 2012): makrorazina (sustavno uređenje), mezorazina (strukturni uvjeti), mikrorazina (subjektivni i socijalni faktori). Billet (2018) definira cjeloživotno obrazovanje kao skup iskustava nastalih u društvenom svijetu, manifestiranja u obliku društvenih sugestija koje obuhvaćaju određene oblike, norme i prakse. Obrazovni programi usmjereni su na postizanje određenih ishoda, kao što su razvoj određenih vještina, normi ili dobre prakse. Glavne karakteristike cjeloživotnog obrazovanja. Prema Izvješću o budućim poslovima koje izdaje Svjetski ekonomski forum navodi se nekoliko ključnih vještina suvremenoga zaposlenika koje su raspoređene u 4 skupine (Whiting, 2020):



- rješavanje problema – obuhvaća vještine analitičkoga razmišljanja i inoviranja, kritičkoga razmišljanja i analize, kreativnosti, originalnosti te rezoniranja, rješavanja problema i davanja ideja
- samostalno upravljanje – obuhvaća vještine aktivnoga učenja, tolerantnost na stres i fleksibilnosti
- rad s ljudima – obuhvaća vještinu vodstva
- korištenje tehnologije i razvoj – obuhvaća vještine korištenja tehnologije, nadziranja i kontrole te dizajniranja i programiranja.

## **Migracije kao transferi znanja**

Migracije potaknute odlaskom u razvijenije, naprednije sredine motivirane boljim uvjetima za rad i napredovanje sve su češći oblik ekonomskih migracija. One su često i vremenski ograničene, tj. pojedinac odlazi na određeni period s idejom da se u dogledno vrijeme vrati u matičnu zemlju. Migranti su važni akteri u globalnim aktivnostima koji kroz protok ideja i poslovnih veza ostvaruju dugoročne razvojne koristi dok kvalificirani migranti čine poveznicu matične zemlje porijekla s internacionalnim mrežama te protok znanja, što je važno kako za države primitka, tako i za države porijekla. Migriranje dijela visokoobrazovane populacije kompleksno je polje odlučivanja pojedinca u međudjelovanju sa sistemskim čimbenicima, pri čemu sistemski čimbenici poput vremena (kratkoročnost i dugoročnost), informiranosti (razina, selektivnost), 'mreže kontakata' (umrežavanje prije i poslije migriranja), iskorištavanja intelektualnih resursa (lokalne i globalne politike vlada) oblikuju individualne odluke (Adamović i Mežnarić 2003, str. 143). Presudni potisni čimbenici u odluci visokokvalificiranoga stanovništva o iseljenju jesu ekonomski, pravni, edukacijski i politički, dok se privlačni faktori odnose na prilike za bolje radne uvjete, bolju kvalitetu života, napredovanje (Troskot, Prskalo i Šimić Banović 2019, str. 878). Visokoobrazovani migranti zaposleni na pozicijama ispod svojih kvalifikacija veliki su gubitak za državu emigracije, a ne predstavljaju niti veliki dobitak za državu imigracije (Božić 2014, str. 294). Negativni učinci za regije iz kojih visokoobrazovani ljudski kapital odlazi odnose se na: smanjenje količine ljudskoga kapitala, smanjenje mogućnosti za stvaranjem i korištenjem naprednih tehnologija, smanjenje ekonomskoga rasta, reduciranost specijaliziranih znanja unutar promatranoga područja i mnoge druge (Cavallini i sur., 2018). To su individualne migracije, to jest oblik migriranja u čijem se središtu kao jedinica analize nalazi autonomni donositelj odluka, koji ako i jest u nekim slučajevima pod pritiskom, u gotovo svakom trenutku procesa odlučivanja može determinirati, opisati parametre svoje odluke: posao, obitelj, profesionalni položaj, kvaliteta života, kulturni transfer i politika (Le Bras, 2003). Osoba koja je napustila svoju domovinu ne treba se smatrati trajno izgubljenim kapitalom jer mreženjem kontakata ona i dalje može biti efikasno inkorporirana u matičnu zajednicu i prenositi svoja novostečena znanja i iskustva, a upravo učenje na daljinu i nove tehnologije u tome će pomoći. Hrvatska dijaspora jest područje u koje se može širiti tržište hrvatskih obrazovnih ustanova, a radi se o velikoj

grupaciji kako je prikazano u Tablici 3. Procjenjuje se da je broj Hrvata u dijaspori otprilike jednak onom u domovini. Kontakt s domovinom i obrazovanje putem e-učenja zasigurno bi privukao značajan broj novih studenata (Sinković i Kaluđerčić, 2006).

Tablica 3

## **Zaključak**

Potreba za obrazovanjem temeljna je potreba suvremenoga čovjeka i želja za obrazovanjem kao i razvojem svijesti o sveobuhvatnom razvoju ličnosti nikada ga ne bi trebala napustiti. Obrazovni procesi koji se provode unutar obrazovnih institucija odražavaju stupanj razvijenosti zajednice u kojoj djeluju. Potrebna razina znanja koja se dobije u obrazovnim institucijama uvijek je u zaostatku za zahtjevima tržišta, stoga je cjeloživotno obrazovanje neophodno. Ova je pojava već odavno uočena, stoga se nastoji što više usavršavati nastavni proces i pri tome uvoditi najsuvremenija tehnološka pomagala te osvijestiti pojedince da su bili i da će ostati konkurentni na tržištu rada jedino ako ulažu u svoja znanja i vještine. E-učenje ima veliki potencijal te postaje sve snažnije sredstvo koje izvrsno dopunjuje tradicionalne nastavne metode. Udaljenost više nije prepreka i time postaje dostupnija te ekonomičnija. Transferi znanja postaju brži i dinamičniji, uz manje troškove migranti će dobiti još jednu aktivnu poveznicu s domovinom u kojoj se i dalje mogu usavršavati kroz programe cjeloživotnoga obrazovanja te se specijalizirati i time jačati svoje kompetencije na globalnom tržištu rada. Istraživanjem se utvrdilo kako naši fakulteti ne prepoznaju radne migrante kao potencijalne polaznike. Ograničenja ovoga rada su nepotpuna statistika i nedovoljna praćenja naših iseljenika u inozemstvu. Jednako tako alumni studenti održavaju slabi kontakt s matičnim fakultetima i teško se dobivaju informacije.