Development of education in the epoch
of information society formation

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Abstract. *The present article focuses on the study of peculiar features of influence of information society on education and of the changes that emerge due to introduction of information technologies in education activity. The author states that for the last years information law experts' interest to the topic of information society, information networks, major trends of formation of information society in Ukraine, including the issue of usage of information network in education sector, has grown immensely. The author agrees with the thesis that Ukraine should use the best practices of other countries with regard to use of information networks and the Internet in education.*

Key words: *education, post-industrial education, information technologies, information society, online platforms, international information* exchanges, information systems, online courses.

Problem statement

A greatest challenge the higher school faces today is training of young specialists for the life in information society that facilitates, and at the same time makes it more complicated, the process of education activity and further employment both for students and professors. Under present conditions of development and extensive use of hardware, graduates, and above all, professors, have to seek efficient solutions to problems independently with the help of the latest information technologies. We think that, prior to introducing new of information technologies in educational and cognitive process, it is necessary to carry out a thorough study of them and necessity of their use, especially with regard to the use of the Internet and respective educational programs and courses placed nowadays at the market of education services. Never before has the Internet become a revolution in computer and communication world enabling everyone to make fast and high quality search of information. In general, there are certain barriers to high quality use of the Internet in Ukraine. They include low coverage, low level of media literacy of people, financial condition of consumers, mindset of certain groups of people, etc., however, one can univocally assert that the use of the Internet is going to be more and more embracing both in Ukraine and in the world each year by year. It is known that by the year of 2014 the Internet coverage is going to have been provided all over the world due to new space satellites and development of space industry.

At the same time, worthy of separate attention is the issue of the use of information networks and technologies in education sector. Indeed, today, the issues of the use of information society advances, use of information technologies in education, and of information threats and challenges emerging in the course of introducing advances of information society into education process fall through the cracks on the part of researchers. This is so because development of information society does not only open vast opportunities but also generates very serious challenges and threats.

With information technologies developed, the contemporary world and Ukraine have entered the era of information threats, cyberattacks, and subsequently, information

wars. Some information wars might be much more powerful than conventional ones carried on land by means of people, territory and weapons due to that they target at undefined territories by means of data capabilities. Apart from this, the counteraction issue gets complicated due to the actual lack of legal control over information exchanges and information systems operating in Ukraine. The striking examples of this are the Internet and lack of the Internet mass media concept, which, in its turn, makes it impossible to verify the information distributed therein, thus laying the groundwork for the Internet mass media being used for destructive purposes [2].

The important tendency of the world development is growing significance of humanitarian security as it is a key component of the national and international security comprising intellectual, educational, psychic, physical, moral, reproductive, spiritual, genetic, material, and cultural and ethnic types of security [3, c. 124]. All these threats have nowadays become not only the subject matter of scientific discussion but also a component of our information space. However, the existence of these threats does not raise a question on whether it is reasonable to use the Internet or not. Thus, following expert opinion, "Today the Internet is a widely spread information infrastructure, a prototype of what is often called as National (Global or Galactic) Information Infrastructure. Its history is complicated and comprises multiple aspects: technological, organizational and social ones. Its impact reaches not only technical aspects of computer communications but also the entire society scale, as we move towards growth of online-tools to reach e-commerce, data collection, and community actions [1].

Experts state that the industrial epoch of a very standardized manufacturing is ending, and the teacher is not an only source of knowledge anymore. A particular aspect of the problem presupposes rapid development of artificial intelligence, which is one of the characteristic features of "the fourth industrial revolution", which eventually can jeopardise humanity. The work "Sapiens: A Brief History of Humankind" by Yuval Noah Harari contains an interesting description of this: "artificial intelligence starts surpassing the human intelligence, and although there may emerge new professions in the future, there is no firm belief that a human will cope with them better

than a computer does." "The next generation will face consequences of this technological revolution. The major part of the knowledge nowadays acquired by children in school is likely to become useless when they are 40-50. If they decide to keep on working, they will have to constantly cognize the world all over again and discover new and new abilities in themselves, and become more and more responsive to changes" [4].

Experts state that technological advances are penetrating all spheres of life, and time becomes the most expensive economic resource. Therefore, employers are getting more and more exacting to education of job applicants. In return, education market offers more and more short-term job family competencies courses and programs, including online ones. Nevertheless, what one should do with university education foreseen for several years? Competition and development of technologies are accelerating at such rate that it is practically impossible to foresee the required competences for several years ahead. According to estimation of WorldBank, 2016, 65% of present-day primary school students will work over the tasks that have not yet emerged. Thus, investment into field-specific education becomes a somewhat like buying a pig in a poke. Knowledge is getting outdated quicker than it is laid down in a textbook. Google will always know more, and all its information is available at any instance. Then, Whom, What, and How shall we teach? Do we need university education at all? The conventional forms are seemingly wear away [5].

Everyone feels the urge for changes in education. However, in Ukraine there is still controversy in the vision of objective in education: to give structured fundamental knowledge or to teach thinking freely and learn independently with the help of available means. Outdated information, lack of skills, low funding of education system, absence of clear vision of reformation of primary and higher schools in their interconnection and mutual influence, etc. All of these needs point out at the necessity to develop a comprehensive system of reformation of education based on national traditions, experience, and mindset, with European best practices taken into account, improvement of the system for training of teachers and

educators in universities, with new education trends taken into consideration.

The analysis of development of education sector in contemporary world shows that the use of information technologies will help us solve the acute problems of present day education only if the development of technological subsystem is accompanied with revolutionary changes in all other subsystems: political, economic, pedagogic, organizational ones, etc. In view of speedy development of science and technical progress, particularly in information technologies sector, it is necessary to ensure a continuing professional training for future professors which facilitates the education process. Implementation of new teaching techniques in educational process facilitates updating teaching methods related to various scientific branches.

Another challenge of contemporary Ukrainian education is a flow-out of students abroad. Thus, following the idea of O. Mykhailenko "Though the problem of students' flowing out abroad has acquired a critical scale in Ukraine, the urge for changes at the turn of industrial and post-industrial epochs is not only a Ukrainian problem. Universities in many other countries are trying to create new education models that would shape key competences required in XXI century. As it was defined at the World Economic Forum-2015, professional activity in "new economy" requires critical thinking, creative skills, ability to manage people and work in a team, emotional and cultural intelligence, decision-taking at personal responsible discretion, readiness to serve other people, negotiation skills, and cognitive flexibility. Obviously, the emphasis is made not so much on the knowledge that rapidly gets outdated as on psychological competence to independently acquire and create new knowledge, inner freedom, responsibility and mutual understanding between people in diversified environment [7].

The major directions for education migration remain to be Poland, Russia, Canada, Italy, Czech Republic, the USA, Spain, Austria, France, and Hungary. The logic goes: the first-order reason is that the level of education abroad is higher than the Ukrainian one. However, the studies carried out by the analytical center CEDOS disprove this. "According to statistical data, we can make a hypothesis that Ukrainian students are more likely to be governed by the principle of better

benefit when entering the universities abroad. A widespread conviction is "If go abroad you'll gain a foothold". Thus, Ukrainian students intend to find employment abroad after they graduate from the university, and not necessarily where their qualification is needed.[8]. That is why it will be quite problematic to stabilize the situation in education sector without having made changes in political and economic spheres, whereas the present-day education sector should response quicker to new achievements in information sector, namely, search for the tools of successful usage of information technologies by implementing new e-learning forms. Thus, according to the opinion of S.M. Ivanov, S.V. Hlynianskyi, – e-learning with the use of computer and information and communication technologies, has, as a rule, such forms: televised Q&A sessions, chatroom lessons, webinar, audio- and videoconferences. A televised Q&A session is an e-mail correspondence based on mailing list as an alternative to conventional correspondence. This education form allows for achieving basic education tasks only. A chat-lesson is an educational lesson with the use of chat-technologies: exchange of short text messages in real time. Such lessons are held simultaneously for all participants to have a shared access to the chat. A chat as a mode of communication may be used both separately and jointly with other forms of education supplementing each other. A webinar is a collective notion for online lessons conducted as conferences, seminars, business games, forums, laboratory or control works, case studies, online tests, surveys, and other forms of education lessons made possible with the help of the means and technologies of the Internet, namely, new generation of the technologies WWW enabling interactive ways of communication. This form of education is now much hoped for, as it is very convenient, low maintenance, flexible in management and easy-to-use one for the people of different age and education level…. Audio- and videoconferences may be used both unilaterally and with the use of feedback function, i.e. be interactive ones. The training of new legal human resources is impossible without the use of high quality, intelligent education and scientific information which serves reliable base for IT penetration into educational process, creation of latest scientific

and educational computer networks, and improvement of the system of training of experts on the whole [9].

Conclusion

Today, there are hundreds of free education platforms and online courses. The worldwide known one is the platform Coursera that cooperates with universities from various countries for teaching the courses of educational establishments by using online-technologies. In Ukraine, such platform as Prometheus, EdEra (Education Era), are highly active, striving for making education in Ukraine high quality and accessible. These are public projects of popular open e-courses that have been created in cooperation with professors from the best universities of Ukraine. Those

users who will successfully pass all the interim and final assignments may obtain certificate on completion of the course with a professor's signature. British Council have already created a series of free online-courses (MOOC) that help people improve their English, and the knowledge in various subjects, while communicating with students from all over the world. Implementation of the projects "Public Education and E-Democracy in Education Establishments" is of high importance either. Thus, the future Ukrainian education must take into account the opportunities given by information society and information technologies and use them in educational practice.

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