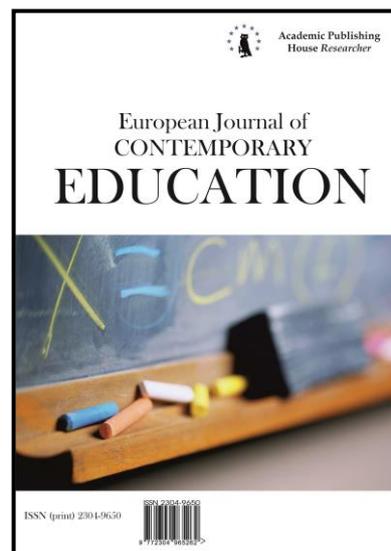




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Development Prospects of Distance and Online Education in the Higher Education System of Ukraine

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Abstract

The article examines the advantages and perspectives of distance education development in the Ukrainian higher education system. One of the innovations in the process of organizing education in Ukraine, as a country that actively implements the demands of time and the Bologna process, is the actualization of distance learning, that meets the needs of the modern society, the society that needs a mobile professional who can implement the skills and knowledge in the globalized society, not only limited to the norms and standards of their own country. Distance learning is one of the promising and effective forms of higher education, which ensures the expansion of professional contacts, as well as greater use of the scientific and methodological potential of higher education.

The authors consider the open educational resources to ensure the further effectiveness of the education system in Ukraine (in the context of society digitalization), to adapt it to the process of global integration. Open educational resources, both worldwide and Ukrainian, are the means for the development of skills and knowledge, due to which future professionals in a particular field have the opportunity to become more competitive at the labor market in the period of society globalization, achieving more significant goals.

Keywords: distance learning, higher education system, professional skills and knowledge, open educational resources.

1. Introduction

In the 21st century, the traditional process of education is transforming into computer-based training. It is possible mainly due to the development of the Internet: for instance, to receive and

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share information with different countries of the world through the Internet sites, or to communicate freely with other users of the network online – as a fact, modern information digital technologies improve the efficiency of the learning process. Another trend in the contemporary educational system is the cross-industry activity, which integrates several specialties at the same time. The demand for getting such highly qualified specialists is constantly increasing as they can integrate and synthesize knowledge from different fields and become more versatile professionals.

The Nobel Prize laureate in physics, Richard Feynman, noted that the best way to learn a subject is to gain knowledge from different scientific schools. Online education gives us this opportunity (variability and a broader view of a particular sphere), both for offline universities and various educational institutions, it is an opportunity to make learning more interactive (Shtykhno, 2016).

The goal of this research is to examine different forms of distance learning, in particular the advantages of the open educational courses as the tools for developing communication abilities and professional skills of future specialists, mastering their ability to solve typical and non-typical tasks independently, to search for the necessary information and to apply professional activities through the whole life.

Achieving this goal involves performing the following tasks:

- 1) to analyze the process of providing open educational resources in distance learning;
- 2) to examine the functions of Coursera and Prometheus – online courses platforms – as the effective tools for the implementation of distance learning in Ukraine.

2. Materials and methods

The research is based on systematic, synergistic, and activity-, personality-oriented approaches. The methodology used made it possible to distinguish the main paradigms of studying contemporary distance learning system in the world, comparing with Ukraine, in order to optimize and implement technological innovations of this sphere in the Ukrainian educational system. The study used methods of analysis and synthesis, analogy, system and classification, comparison and generalization. The method of synthesis solved the research tasks through the application to primary sources on the subject. The application of the analytical method to the primary source data made it possible to analyze distance learning technologies, in particular open educational courses, regarding their implementation in the national educational system to European legislation; as well as the compliance of the international distance learning system with the specificities of the national one. Comparative analysis was used as one of the main methods of analysis, which made it possible to compare the domestic open course platform for distance learning Prometheus with the world-known Coursera legal basis for regulating the object of study in the other countries of the world. The descriptive method allowed presenting the results of the study in a logical sequence. The method of generalization helped us to obtain reliable and valid results and conclusions.

The materials used for the study are the scientific theoretical basics for the developments on relevant issues, as well as the modern online distance learning platforms Coursera and Prometheus, which are very popular with Ukrainian students.

The results of a survey of the Sumy State University students (Faculty of Foreign Philology and Social Communications), carried out using Google Forms of online surveys and polls, were used for preparation of the article. The study was based on the Pearson's χ^2 criterion as non-parametric methods of assessing the significance of differences between actually observed and expected results.

As part of the study, we interviewed students of "Translation" department in the Sumy State University. The total number of students at this department is 200 persons, among whom 119 persons took part in the survey, that is 59.5 %. The error of the study representativeness with a probability of 0.95 does not exceed 2 %. Quota of sampling is done according to the training course (year of studying). Respondents were selected at random.

3. Discussion

In recent decades, world-class distance learning technologies have evolved significantly in the world, as evidenced by foreign studies, such as J.-S. Lee, H. Cho, G. Gay, B. Davidson, A. Ingrassia (Lee et al., 2003), highlighting the problems of eliminating computer illiteracy; the methodology and means of implementing e-learning via the Internet, A. Klačnja-Milićević et al. (Klačnja-Milićević, 2011), examining online teaching and e-learning personalization in distance learning

process: T. Bond-Barnard and H. Steyn (Bond-Barnard et al., 2013), analyzing communication developing tools in distance learning process; A. Garcia, P. De Bra, N. Stash, G. Fletcher, M. Fabri, M. Pechenizkiy (Garcia et al., 2016), elaborating web-based education tools for disabled students.

Ukrainian scientists have their own researches on distance learning, i.e. N. Andrusenko (Andrusenko, 2017), O. Korbut (Korbut, 2017), N. Samoluk and M. Shvets (Samoluk, Shvets, 2013), L. Shtykhno (Shtykhno, 2016) study the general aspects of the problem, that is the relevance of providing distance learning in the Ukrainian educational system, elaborate the organizing models and technologies of this process, anticipating the perspectives of its development; N Stetsenko (Stetsenko, 2016), Yu. Torba (Torba, 2016), I. Yaroshchuk (Yaroshchuk, 2013) discuss the empiric problems, such as the development of distance learning tools for improving the professional education system, especially the communicative skills, design and system thinking (Lebid, Shevchenko, 2020a; Lebid, Shevchenko, 2020b) as an obligatory component for general professional training.

Issues on distance learning, forms, methods, and conditions of its implementation in Ukraine are also studied by K. Bugaichuk (Bugaichuk, 2012), T. Kapustynska (Kapustynska, 2018), Yu. Sokolova (Sokolova, 2018), and others.

4. Results

Nowadays, no one doubts that cyberspace constitutes a real and crucial part of social space. It is difficult to defend a thesis that it is an unreal world. One can work, earn, trade, study, find entertainment, etc. in cyberspace. Educational reality contributes significantly to cyberspace as well. On the one hand, it exists at an explicit, formal level – in the shape of curricula, e-learning activities, independent or guided search for knowledge and information or a communication network between particular subjects of the educational process. On the other hand, there exists an informal, hidden level – in the shape of new forms of cheating, copying ready solutions, undertaking activities connected with entertainment at the time formally devoted to studying, informal contact among students, etc. (Łęski, 2018: 23-29). These two areas can be analyzed from the point of view of their benefits for the development of the educational process today. Cyberspace gives an opportunity to modify the traditional way of getting knowledge, to modify the traditional process of education through transforming it into computer-based teaching and learning.

Distance learning and teletutoring are extremely active areas of research. Many courses are now being developed on the Web. Distance learning means that the learning material is offered as computer-based training (CBT) or as Web-based training (WBT) that can be used by students in their own learning environment at their place of work or at home. Access and interaction are completely self-organized (Opwis, 2001). In the process of distance learning, the teacher-learner interaction takes place in virtual space with the help of the world telecommunication infrastructure, which enables the creation of a mass self-study system as well as general information exchange.

Historically, distance learning appeared in 1840 when Isaac Pitman encouraged English students to study via the post. In Europe and America, distance education began its intensive development in the 1970s. In Ukraine, distance education has been actively introduced since 2000 and is governed by the Concept for the Development of Distance Education in Ukraine. Distance learning entered the 21st century as the most effective system of training and continuous support for high-level qualifications. Nowadays, digitalization of higher education is considered to be one of the leading directions of its development in Ukraine. On the one hand, that is a complex of socio-pedagogical transformations regarded to providing the educational systems with innovative methods and tools of training, on the other hand, that is the promoting implementation of electronic facilities based on microprocessor technology, as well as software products in educational institutions (Andrusenko, 2017).

According to the experts of the UNESCO Institute for Information Technologies in Education, the most important directions of the promoting education system are:

- improving the quality of education through fundamentalization, applying different approaches with new information technologies;
- ensuring the leading character of the entire education system and its focus on the problems of the future post-industrial civilization;

- making education more accessible to the planet's population through the widespread use of distance learning and self-education applying information and telecommunication technologies;
- enhancing creativity in training to prepare people for life in different social environments (providing developing education) (UNESCO IITE, 2020).

Changes in the education system of the 21st century occur for the following reasons: The first reason is related to the educational needs of the post-industrial society. We need new learning routes that meet the specific conditions, requests and individual characteristics of the learners. Today, electronic textbooks reflect the views of authors that are intransigent to such peculiarities (taking into account the traditional education system standards).

The second reason is related to the trends in information technology development, which opens up new possibilities in the intellectualization of automated systems and their interface. The global Internet has opened access to information servers located in different countries of the world. The network bandwidth is growing, allowing territorially disjointed people to communicate in real time. All this opens up unprecedented opportunities for the education sector in accessing educational information and optimizing its presentation (Dolynsky, 2011).

The system of higher education in most European countries is characterized by the transition from a centralized model of knowledge transfer, at the center of which is a teacher who communicates knowledge to a student, to an independent information reception model, at the center of which there is a student (Klish, 2017). This process is facilitated by informatization in society, which has become one of the most significant global operations of our time. The widespread promotion of information technology into teaching practices requires a revision of the educational process.

The National Doctrine of Education Development determines the priority of education development, that is the promotion of modern information and communication technologies, which ensure further improvement of the educational process, its accessibility and effectiveness, and preparation of the young generation for life in the information society. This is achieved by providing gradual informatization and digitalization of the education system aimed at meeting the educational information and communication needs of participants in the educational process; by applying distance learning using the educational process and library informatization along with traditional means (Korbut, 2017).

According to the Regulations on Distance Learning, registered on April 30, 2013, under № 703/23235 in Ukraine, distance learning means an individualized process of acquiring knowledge, skills and methods of cognitive activity of a person, which is provided mainly through indirect interaction of remote from each other participants of the educational process in a specialized environment that functions on the basis of modern psychological, pedagogical, information and communication technologies (Regulations..., 2013).

The process of distance learning is based on the interaction between teachers and students, applying a set of modern technologies that provide the main volume of educational material, giving future professionals the opportunity to work independently.

The majority of researchers (Bugaichuk, 2012; Klish, 2017) define distance learning as the education process characterized by five main features:

- the presence of a teacher and a student and, at least, the existence of an agreement between them;
 - spatial separation of a teacher and a student;
 - spatial separation of a student and an educational institution;
 - two-way interaction between a teacher and a student;
 - selection of materials intended specifically for distance learning.
- There are four types of participants in the distance learning system:
- a learner or a student (the one who studies);
 - a teacher (the one who teaches);
 - a manager (the one who carries out the planning of educational activities, develops training programs, deals with various organizational issues);
 - an administrator (a person who ensures the efficient and stable functioning of the system, and, if necessary, resolves technical issues).

Different means of providing educational information can be used in distance learning – from traditional print textbooks to the most up-to-date computer technologies. In recent years,

distance learning has been extended through the possibility of learning via the Internet. Technically, it is based on such software as Authoring Tool and Learning Management System. The system of information exchange allows students, teachers, experts, and other participants of the educational process to exchange information with each other both synchronously (in real time) and asynchronously.

Such process of learning can be used within the university, if it has a local computer network (for example, at Sumy State University there is Lectur.ED and MiXlearning). This process is based on the method of electronic learning (computer learning, as one of the variants of this method).

The essence of e-learning lies in the fact that the density of knowledge and skills accumulation increases due to the distribution of Learning Objects and the quality control of its mastering. First, students are offered to study a part of the lecture materials, after that it is necessary to complete practical tasks for mastering the studied material. It is necessary to complete all the tasks before transferring to the next block, which is possible only after fully mastering the previous one. This method can be applied using the so-called xDLS (eXtensible Distance Learning System). This is the automation system (for providing the information) of distance learning in different educational institutions (LO, 2017).

There are several organizational and methodological models of distance learning: external degree training; studying on the basis of one university; cooperation of several educational institutions; autonomous educational institutions specially created for the distance education purposes; autonomous training systems; non-formal integrated distance learning based on multimedia programs.

The scientists (Anderson et al, 2001; Klačnja-Milićević, 2011; Samoluk, 2013) suggest such basic principles of distance learning be taken into account while organizing the process:

- the principle of interactivity: providing for students the more interactive way of communication with teachers through modern means of telecommunications;
- the principle of basic knowledge: in order to obtain the education through distance learning a student needs some basic knowledge and the hardware to gain further education;
- the principle of individualization: distance learning makes it possible to individualize the educational process, consistent with the curriculum through an interactive communication as well as computer mediation;
- the principle of pedagogical expediency of new information technology usage.
- The use of distance learning technologies allows to optimize the modern educational process through innovative means of informatization and digitalization:
 - to reduce the costs of training;
 - to train a large number of people simultaneously;
 - to improve the quality of education through the use of modern electronic learning tools;
 - to create a single educational environment (Willey, 2020).

Analysis of the distance learning process allows to define it as:

- flexible: students have an opportunity to learn in comfortable conditions (convenient time, place);
- modular: the development of a distance learning program is made on a modular basis;
- concurrent: distance learning combines several educational programs simultaneously;
- distant: the possibility of obtaining an education degree without being in the educational institution;
- asynchronous: convenient learning schedule for both a student and a teacher;
- massive: a large number of students;
- profitable: distance learning is economically efficient;
- social: distance learning has no social tension providing equal educational opportunities regardless of residence and income;
- international: distance learning provides a convenient opportunity to import and export educational services.

The following basic elements are currently popular when organizing the distance learning process:

- electronic correspondence;
- virtual classrooms;
- online video conferences;

- forums and blogs;
- chats and ICQ;
- webpages and websites;
- online courses, etc.

In today's educational environment, the main global trend is to scale open educational resources. Open educational resources make it possible to increase access to quality education, taking into account their unimpeded and shared use in many countries and educational institutions. The term Open Educational Resources (OER) was first introduced in July 2002 at the UNESCO Open Educational Systems Forum for Developing Countries. Generally, open educational resources are meant as educational and scientific resources that are openly available or released under a license that allows them to be used and modified free of charge by the third parties. Given this definition, it is possible to distinguish the characteristic features of the open educational resources: educationally, methodologically and scientifically oriented materials; support of different formats and media for material presentation; publication of educational and scientific materials under the conditions of an open license; free access; usage, processing, and redistribution of materials by other users; minimal restrictions (or no restrictions) when working with open educational resources.

According to the Cape Town Declaration (2008), open educational resources ensure the continued effectiveness of open education in the information society. The development and productivity of open resources should ensure the international movement of the same name, «open educational resources» (Daniel, 2014; Open Content, 2020).

Also, the availability of open educational resources has led to the globalization of education, which makes the boundaries of «scientific schools» blur, and the «closed teaching methods» disappear (Bond-Barnard, 2013).

Educational institutions promoting open educational resources have a positive reputation and attract more students, and such institutions are financed by non-governmental funds. Universities play the leading role in the creation of open educational resources by having implemented video tutorials on YouTube channels and having created more elaborate learning complexes for entire mastering courses within different knowledge fields (Lee et al, 2003).

The development and implementation of Open Educational Resources promote great advantages:

- providing free and universal high-quality access to content: due to the transparency of resources and the ability to evaluate and discuss publicly, teachers and students have the opportunity to obtain sample information;
- reducing significant spending on education: users do not incur additional costs due to the digital form of providing information;
- a substantial reduction of time for the development of educational programs and updating of existing ones: they also compensate for the lack of certain skills related to the development of advanced technologies;
- facilitating multi-channel transmission of information (multimedia), there is an opportunity to engage different channels that has a positive impact on the quality of the learning process;
- encouraging communication between developers and consumers of educational services;
- providing an opportunity to implement the principle of «lifelong learning» (Samoluk, 2013; Sharov, Martynuk, 2012).

It should be mentioned that an effective form of open educational resources is an institutional repository, an electronic open access archive. The World Wide Web provides access to the research results of scientists in various fields in the modern information space to anyone, anytime and anywhere. All libraries in the world have the opportunity to open their catalogs and other necessary resources for free access and use by the people interested in it. It became possible due to the worldwide Open Access movement. Open access to information is ensured through electronic repositories created in higher education and research institutions, where in addition to printed articles, non-printed ones are also archived.

The basic principles of open access to scientific knowledge are set out in the following documents: Budapest Open Access Initiative adopted by the Open Society Institute; Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities. In particular, the central theme of the Budapest Open Access Initiative was to invite universities, libraries,

publishers, foundations, and scholars to join open access, and make the results of research open to the community (Bugachuk, 2012).

The primary guideline for universities and libraries is the general principles formulated by the International Federation of Library Associations and Institutions (IFLA, 2020), which is the basis for the Open Archives ideology. These principles include:

- worldwide consolidation of scientific archives;
- free access to archives (to metadata);
- unified interfaces of archives and information providers;
- easy to use archives.

The open access model is useful for university libraries, which in the information society are the main participants in forming a system of scientific and educational research organization and publication processes, as being open research institutions. The web-based mechanism of today guarantees fast and free access to them.

However, open access does not mean copyright infringement because it is complied with law. Using the resources of the institutional repository makes it possible to accomplish the following tasks:

- to provide open access to scientific and educational works online, free of charge, full-text, fast and permanently;
- to accumulate knowledge (to obtain, gather and store the research results by categories: author, institution, discipline, scientific school, etc.);
- to unify the standards of data storage formats, to use open-source software;
- to personalize workspace (comfortable interface and user contribution tracking);
- to provide content navigation based on a category principle (structured and logical information);
- to quantify the information volume as a user development indicator (gives the objective reflection of the scientific work results).

Over the last decade, the number of open educational resources provided by repositories of higher education institutions and project websites has increased significantly, and accordingly, the number of Ukrainian users of such well-known platforms as Coursera, Edx, Udemy, MIT Open CourseWare, Open Learn has increased. The emergence of such resources, from one point of view, led to ubiquitous learning (u-learning) and, on the other, to the education that meets the society's needs, that is providing lifelong learning in any desired direction which is now a prevalent educational trend in Ukraine (UUA, 2009).

UNESCO-based innovative university repositories such as MIT Open CourseWare, Open Yale Courses, TED, MERLOT, Notre Dame Open Courseware, Open Learn, and others are examples of the above-mentioned open resources (UNESDOC, 2020). Almost all universities in Ukraine now have their own repositories (for example, the Sumy State University repository).

An essential component of national documentary and information sources is scientific publications. The main social function of these publications is to provide the primary scientific information to society and to make the content of the scientific property public. At the same time, they perform a socially important function of scientific priorities fixation and serve as a means of scientific communication. Today the creation of open access and open archives is continuously improving and becoming competitive with the existing "journal model" (printed edition). Thus, the open resources containing full-text versions of scientific works are:

- Google Scholar – a free, accessible search engine that indexes the full text of scientific publications of all formats and disciplines;
- ELibUkr-OA – (a multidisciplinary open electronic archive) a service offered through the ELibUkr project portal for scientists, professors, PhD students, postgraduate students and researchers of universities or any other scientific institutions of Ukraine that do not support their own (institutional) open electronic archive;
- scientific periodicals of Ukraine on the portal of Vernadsky National Library of Ukraine;
- OpenDOAR – a reputable directory of academic open access repositories.
- Among the world-known open resources, there are online courses that give the opportunity to master different subjects remotely, as well as web-based tools for organizing training or knowledge control:
- Coursera online platform that makes education accessible to everyone by offering online courses from leading universities and organizations of the world;

- Prometheus is a Ukrainian public project for massive open online courses, the purpose of the project is to provide the best educational opportunities to every citizen of Ukraine free of charge.

The advanced online courses existing all over the world allow users to study, communicate and be respectable citizens of their countries. Stanford University researchers launched a Coursera online education project in April 2012. This project offers users a large number of free online courses from the representatives of the world's leading higher education institutions, upon successful completion of which the student has the opportunity to obtain a certificate.

The potential of the platform includes more than 2000 courses in the following fields: social sciences, humanities, engineering, biology, IT, medicine, mathematics, business, etc. The duration of the training ranges from three to ten weeks and is available free of charge. The language of instruction is predominantly English, but the video materials of each course are subtitled in different languages.

Coursera training is asynchronous, it means that teachers and students have the opportunity to work autonomously on an individually pre-determined schedule. The peculiarity of the courses is that every week students need to learn a new educational block by watching the topic related videos, reading additional theoretical literature, interacting on forums, completing current course tasks, and more. All the materials should be worked through within a week, and each theme should be completed by an individual control task, like creating a video, writing an essay, etc. and a test.

In order to complete the course successfully, students must obtain at least the minimum number of points determined by the course developers within a specified period. The tests are automatically verified by computer programs; and individual tasks are cross-checked, which requires that each student of the course must evaluate a certain number of other students' works according to predefined criteria.

The test system also assumes that the student who has checked the work should comment and justify the assessment grade. After reaching the test deadline and completion of the work evaluation, all students have the opportunity to obtain intermediate control results, which are defined as the arithmetic mean of the grades obtained from the students who evaluated the individual works.

To prevent plagiarism and respect academic integrity, Coursera focuses students' attention on compliance with the principles of the *Honor Code*, which they must agree to before submitting each individual assignment.

Coursera project experts summarized the results of their work in December 2018 and found that computer sciences, psychology, cryptocurrencies, and algorithms were the most popular subjects for studying.

All courses are organized in such a way that they clearly explain the terms assigned to study the material and have the optimal combination of theoretical and practical work. One of the main points of interaction between all participants of each course is their mutual evaluation of each other's work, which allows them to compare their results with others.

Therefore, Coursera is one of the most popular online courses platforms. Coursera courses can be an auxiliary tool to acquire specialized skills, as well as an integral part of higher education programs.

In order to organize knowledge control and study of specific issues in different subjects, it is appropriate to use web tools, such as *LearningApps.org*, which is a Web 2.0 service to support learning and teaching processes with small interactive modules or Kahoot!, which is a free web tool for creating interactive quizzes, etc. There are a lot of open e-learning platforms, for example: Atutor, Dokeos, DotLRN, ILIAS, LON-CAPA, Moodle, OpenUSS, Sakai, SpaghettiLearning, etc.

Prometheus Massive Online Learning Platform is the first and largest free education project for anyone and everyone in Ukraine, an attempt of the Ukrainian educational community to join the modern educational space of Europe and the world as a whole. The mission of this platform is to make available the best courses from leading academics, universities, and organizations worldwide. On October 15, 2014, registration for the first four online courses of the Prometheus project was opened, prepared by the academics of three well-known Ukrainian universities: Taras Shevchenko National University of Kyiv, Kyiv Polytechnic Institute, and Kyiv-Mohyla Academy.

In the first six months since the launch of the project, more than 70,000 users had already registered on the website, for which 20 courses were available (Sokolova, 2018).

The primary purpose of this project is to revolutionize education in Ukraine. Together with the leading higher education institutions, the courses developers are introducing mixed learning technology doing their best for the development of Ukraine (Kapustynska, 2018).

It is now a large-scale portal with dozens of programs on a variety of topics, from management or media literacy to philosophy. In addition, Prometheus provides access to online training courses for External Independent Testing (examinations for admission to universities in Ukraine). Soon, Prometheus developers will launch a new major project — How to Join Leading Western Colleges and Universities for a full scholarship from the graduates of the Harvard University, University of Pennsylvania, and Stanford University. The purpose of the course is not only to help Ukrainians to enter the best Western educational institutions but also to motivate students to return after studying to Ukraine to make our country better and more successful.

The number of registered listeners of the platform has already exceeded 550,000 people. Each participant of the course should open the own account, which contains important personal information. Upon successful completion of the selected course, the student has the opportunity to obtain a certificate. To receive the certificate, each participant must take intermediate tests on each topic of the selected course and complete the final assignment, and the total achievement rate is determined by the number of points scored.

In Prometheus history the greatest demand was for the following courses: Programming Fundamentals, Science of Everyday Thinking, Financial Management, Entrepreneurship, How to Create a Startup, Psychology of Stress, and How to Deal with It. All these courses are among the most popular. Programming Fundamentals Course has over 100,000 registered students ([Online courses..., 2020](#))

In order to test the effectiveness of the course, developers use a number of indicators, among which is the percentage of those who have successfully completed the course. The success stories of the students are also being tracked and published.

Along with the western platforms of massive open online courses, the Prometheus project has several significant advantages:

- creation of courses specific for Ukraine (Ukrainian law, foreign languages, history of Ukraine, etc.);
- development of the courses that already exist in the West but are not accessible to Ukrainians because of the language barrier in the Ukrainian language;
- establishing close cooperation with leading Ukrainian companies through their participation in the creation of course programs and their involvement in the production of specific parts of courses;
- integration into the higher education system through a mixed course format.

The project is continuously evolving, increasing the number of courses available and introducing the latest teaching methods for everyone interested.

In this context, we conducted a study of the level of assessment and effectiveness perception of online learning, including general educational platforms such as Coursera, Prometheus, etc. The research was conducted as a survey in the Google form for Bachelor (1-4 year of study) and Master students (5-6 year of studying) of specialty «Translation» of Sumy State University.

It should be noted that there is a fairly high percentage of respondents' support for the effectiveness of online learning – 63 %. The ineffectiveness of online learning for obtaining the necessary knowledge, skills, and abilities was noted by 17.6 % of the respondents, and 19.3 % found it difficult to answer.

Analyzing the results of the survey depending on the year of studying, it should be noted that in the middle years of studying for the Bachelor's degree, especially in the second year, there is a greater percentage of support for online learning. Though, there appears a gradual decrease of online learning support towards the fourth (graduation) year and master's studying, which may be associated with a significant increase in the number of linguistic workshops in senior years and the complication of the process of developing professional skills in the relatively limited educational conditions connected with the pandemic.

As for the first year of study, there is also a rather skeptical attitude towards distance learning. The paradox is that first-year students, who already have experience of online learning at school, nevertheless, for the most part, express uncertainty about its effectiveness, which is

explained by the short adaptation period of former school students in the new realities of university education.

Nevertheless, despite a rather high percentage of skeptics in relation to online learning, the indicator of students' awareness of online platforms available for learning is high – 95.8 %. At the same time, those who actively use the opportunity of education and self-education on these resources make up 76.5 %.

Interestingly, the overwhelming majority of respondents know the two most popular online platforms – Coursera (89.1 %) and Prometheus (67.2 %). While other online platforms, such as Edx, Open Learn, and others, are known by less than a third of the respondents. Such large-scale online platforms as the MIT OpenCourseWare or the platforms of Harvard, Oxford, or Yale universities are known to a few. At the same time, in comparison with Coursera and Prometheus, less "popular" online platforms of universities of Harvard, Oxford, Yale, and others are better known to senior undergraduate (usually the 4th year of studying) and graduate students. In contrast, Coursera and Prometheus are known to the students of all years of studying.

Profession-oriented (linguistic) online courses and those on communication skills, leadership, project management, etc. were also popular among respondents. Moreover, profession-oriented courses were in great demand among junior undergraduate students, especially freshmen. Whereas project management, for example, was more interesting to senior students.

Table 1. Number of respondents

Course	Total quantity of students (person)	Number of students involved in the survey (%)
1 course/year	56	66
2 course/year	49	65
3 course/year	37	73
4 course/year	32	67
5-6 course/year (Master students)	26	62

Table 2. The level of support for distance and online education by students of the specialty «Translation» of Sumy State University

	Bachelor Students								Master Students	
	1 year		2 year		3 year		4 year		%	pers.
	%	pers.	%	pers.	%	pers.	%	pers.		
Consider distance and online education effective	53	17	72	20	68	10	62	14	55	12
See the opportunity for education and self-education on online platforms	64	21	83	23	78	12	75	16	69	14

As a result of our study of the higher education students' opinions, it becomes necessary to confirm the conclusions obtained using mathematical methods of analyzing statistical data. For this purpose, we have determined the observed and expected results of the survey according to three parameters: the level of higher education – bachelor and master students (Table 3); the year of study – junior and senior students (Table 4); the year of study – students of year 1 - 6 (Table 5-6).

Table 3. Observed and expected results (level of higher education – criterion 1)

Factorial Feature	Observed Results			Expected Results		
	Effective Feature		Sum	Effective Feature		Sum
	Bachelor	Master		Bachelor	Master	
Consider distance and online education effective	61	12	73	61	12	73

See the opportunity for education and self-education on online platforms	72	14	86	72	14	86
Total	133	26	159	133	26	159

Table 4. Observed and expected results (year of study – criterion 2)

Factorial Feature	Observed Results			Expected Results		
	Effective Feature		Sum	Effective Feature		Sum
	Junior Students (1-2)	Senior Students (3-6)		Junior Students (1-2)	Senior Students (3-6)	
Consider distance and online education effective	37	36	73	37	35	72
See the opportunity for education and self-education on online platforms	44	42	86	43	42	85
Total	81	78	159	80	77	157

Table 5. Observed results (year of study – criterion 3)

Factorial Feature	Effective Feature					Sum
	1 year	2 year	3 year	4 year	5-6 year	
Consider distance and online education effective	17	20	10	14	12	73
See the opportunity for education and self-education on online platforms	21	23	12	16	14	86
Total	38	43	22	30	26	159

Table 6. Expected results (year of study – criterion 3)

Factorial Feature	Effective Feature					Sum
	1 year	2 year	3 year	4 year	5-6 year	
Consider distance and online education effective	17	19	10	13	11	70
See the opportunity for education and self-education on online platforms	20	23	11	16	14	84
Total	37	42	21	29	25	154

Based on the observed and expected results we have determined for three criteria, a null hypothesis was formulated: H_0 – differences in the years of studying do not affect the general perception and assessment of the effectiveness of distance and online education formats.

Using the formula to calculate χ^2 ,

$$\chi_n^2 = \sum_{i=1}^n \frac{(O_i - E_i)^2}{E_i}$$

we got the following results:

- 1) for the first criterion, the value of the χ^2 test is 0.001; p-value=0.974
- 2) for the second criterion, the value of the χ^2 test is 0.004; p-value=0.949
- 3) for the third criterion, the value of the χ^2 test is 0.037; p-value=0.999

As we can see, according to all three criteria, the significance level is $p > 0.05$; the relationship between factorial and effective features is statistically insignificant. Therefore, we can confirm the null hypothesis we have formulated. This is also demonstrated by the results of the survey, according to which, despite some uncertainty in assessing the effectiveness of distance education formats, the degree of their support is high, as shown by the data (Table 2).

The study has limitations due to the fact that it is impossible to generalize the data obtained in one university for the entire quantity of students involved in the higher education system of Ukraine.

5. Conclusion

One of the innovations in organizing professional education in Ukraine, as a country that actively implements the demands of time and the Bologna process, is the actualization of distance learning which allows meeting the needs of modern society – the society that needs mobile professionals who can realize themselves in a globalized society, and who are not limited to the norms, standards, and knowledge of their own country.

Distance learning is one of the promising and effective forms of higher education, which ensures the expansion of professional contacts, as well as the greater use of the scientific and methodological potential of the higher education system.

Nowadays, it is impossible to concentrate all the information resources that have been accumulated by humanity in the field of scientific and educational space in a separate educational institution. Therefore, with the help of remote technologies, it is possible to combine and coordinate the actions of several universities. Due to the development of digitalization, it has become possible to apply the best features of traditional forms of learning and integrate distance learning educational methods within them.

Through the use of a computer, compact information media on the Internet allow to expand the scope of educational services, to increase the impact on those who are taught, to diversify the supply of materials and to provide methodological support for the educational process systematically.

The characteristic features that allow the use of distance learning methods in the traditional educational process are technological feasibility and positive impact on the student. Technological feasibility is the use of new information technology in the educational process that facilitates the person's involvement into the world information space. By the positive influence on the student, an increase of the creative and intellectual potential of the distantly learning person, his/her self-organization, desire for knowledge, use of modern information and telecommunication technologies, and ability to make responsible decisions independently is meant.

According to the distance learning development concept in Ukraine, distance learning technologies can be applied not only in the traditional education system. At present time, the most relevant means of distance learning in Ukraine are open educational resources. Further development of the open educational resources movement will provide an opportunity to solve a number of urgent tasks relevant to open distance learning: enable free and universal access to competitive high-quality education; significantly reduce the cost of educational services; significantly reduce time and technology resources in providing educational services; optimize learning by saturating it with information components; ensure multi-channel communication within the educational process; maximize the effectiveness of digital education and lifelong learning. Open educational resources are an effective instrument of obtaining knowledge and mastering professional skills, which positively influence the level of competence of Ukrainian specialists and will make them more competitive in the globalized labor market.

In the conditions of COVID-19 quarantine, Ukrainian universities meet new challenges continuing the process of education, which demands technologically advanced distance forms of teaching students. Thus, the distance-learning tools discussed in the article become even more urgent at present time. Besides free and open access to the Prometheus courses (Ukraine), all the educators and students of Sumy State University can register for a number of the Coursera courses. Recently Sumy State University has joined the Coursera for Campus program that provides free access to over 3800 courses from the leading universities and companies of the world.

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