Analysis of the Opportunities of the Prometheus Platform for the Professional Development of Future Teachers

Sergii Sharov [1], Valentina Liapunova [2], Tetiana Sharova [1]

[1]*Department of Ukrainian and foreign literature, Bogdan Khmelnitsky Melitopol State Pedagogical University, Melitopol, Ukraine*
[2]*Department of Preschool Education and Social Pedagogy, Bogdan Khmelnitsky Melitopol State Pedagogical University, Melitopol, Ukraine*

Abstract – **The article analyzes the possibilities of the Ukrainian-language platform Prometheus for the improvement of professional skills of future teachers and their personal development. It is noted that mass open online courses are a logical continuation of the development of distance education courses, they support the principle of open education and globality, allow any user to form competences and acquire knowledge in various fields of human activity. In order to improve their own qualifications, future teachers can familiarize themselves with the methods of teaching subjects from leading teachers, analyze the structure and content of the courses, broaden their horizons and develop digital competence during the course. The structure and features of the online courses on the Prometheus platform: «Science of everyday thinking», «Critical thinking for teachers», «Media literacy for teachers», «Learning How to Learn: Powerful mental tools to help you master tough subjects» are considered. It is revealed that they differ in the number of weeks for course processing, the number of test tasks and the final tests.**

Keywords – **MOOC; Prometheus; high school; future teacher; improvement of professional skills.**

1. Introduction

Modern trends are characterized by the deep processes of informatization of the society, the rapid development of information and communication technologies, the introduction of the competence approach and the principles of open education significantly influenced the modernization of the content of education and the training of the active members of the society.

The emergence of electronic educational resources based on distance, mobile learning and cloud technologies has led to the expansion of opportunities for basic and additional education, lifelong learning, the enhancement of general and professional competencies of future teachers, students and others. It is especially true for teachers who must understand the new trends in science and education, society, the subject area in their specialty. One of the modern forms of e-learning, which allows you to improve the professional skills of future teachers and their self-development, are the mass open online courses.

Li Yuan and Stephen Powell dealt with the implication of mass open online courses in higher education in the UK, the USA and Canada. The possible influence of MOOC on the society at traditional institutions of higher education was investigated by R. De Rosa, D. J. Skiba, G. Conole and other scientists. Domestic scientists studied the use of open distance courses (A. Voronkin, V. Kukharenko), mass online courses (A. Adamenko, I. Batsurovska, A. Glazunova). They analyzed the possibilities of online platforms Coursera, Udacity, edX, their advantages in comparison with traditional forms of education, and revealed the differences between different types of mass open online courses.

L. Panchenko investigated the possibilities of English-language online platforms for alternative teacher training. V. Kukharenko and other researchers investigated the development and use of national open distance learning courses for improvement of the professional skills of teachers. At

the same time, enough attention is not paid to the analysis of the capabilities of the platform of mass open online courses Prometheus with the aim of raising the skills level.

The purpose is to consider the possibilities of the Ukrainian platform Prometheus as an alternative form of improvement of professional skills, on the basis of the analysis of the content and structure of certain online general-purpose courses.

2. Findings

The widespread use of the Internet, the rapid evolution of electronic digital devices, the updating of requirements for the training of specialists on the basis of the competence-based approach and the internationalization of the educational process have led to the emergence of new trends that have significantly influenced the modernization of higher and secondary education.

One of the important directions of formation and development of a unified educational information space in Ukraine is the introduction of various means of information and communication technologies (ICT) into the educational process, namely: computer-based learning systems based on the use of cloud computing technology, electronic educational resources, mobile technologies [1], electronic libraries, distance education, mass open distance learning courses and other.

At the same time, there is an active process of searching and implementing effective methods for improving the quality of the educational process in the conditions of the information society. First of all, they concern the formation of high-quality digital educational content and the provision of the principle of open education. One of the means of implementing the principle of open education is the distance learning process, which is characterized by a high degree of student autonomy in choosing the time, place and learning goal, the exchange of experience between teachers and students [2], the opportunity to get higher education in domestic and foreign educational institutions [3].

Obtaining education through a distance learning system is carried out with electronic technology platforms that contain educational content from various disciplines, presented in the form of distance courses. The scope of their use is quite wide: professional training of students, training of specialists who work within the specialty, self-development and obtaining additional competencies.

2.1. Advantages of Mass Open Online Courses

The logical continuation of the development of e-learning is the emergence of a new type of distance learning, called mass open online courses (MOOC) [2], [4]. This concept refers to a kind of online course that provides a large number of registered users with free access to educational materials through the Internet. According to G. Conole, in general, participants in mass open online courses can be:

- students / pupils / adults who attend a certain online course;
- teachers who develop an online course;
- heads of educational institutions that implement and use MOOC in educational activity;
- politicians and academics who analyze the possible implications of mass open online courses;
- businessmen who expect a certain return on investment in MOOC [5].

Most researchers pay attention to the possibility of using MOOC as a mechanism to meet the educational needs, improving educational process, personal development of people of all ages [6]; lifelong learning [7], [8]. Such popularity of mass open online courses can be explained by a number of advantages:

- the possibility of free access to online courses by the unlimited number of participants [9], [10];
- flexible structure of online courses, which helps to provide different levels of students participating in blogs, chats, discussions, videos, lectures, etc. [8];
- abilities to choose different types of mass open online courses, depending on the purpose, structure, target group [7];
- synchronous and asynchronous teaching methods;
- availability of educational elements characteristic of traditional education (exam, schedule of courses);
- various means of communication between all the structural elements of the online course [11];
- empowering education for people with special needs and students in preparation for tests [3].

Today, the MOOC is considered a modern and efficient means of acquiring the necessary competencies, education, training etc. In our study, we focus on the possibility of using mass open online courses as an alternative form of improvement of professional skills. In this area, it is possible to distinguish ways of improving the qualifications of future teachers through the use of mass open online courses:

- while taking the online course, the instructor can feel himself as a student, identify strengths and weaknesses in teaching their disciplines [6];
- familiarity with the individual style of the leading experts of prominent universities, expansion of trade relations, methodological knowledge and competencies of intercultural communication [12];
- the analysis of the content of the online course will enable, if necessary, to modify the teaching material of a similar discipline;
- the analysis of the structure of online courses have been developed by the specialists of the leading higher education institutions, will develop a quality distance learning course within the department;
- new courses from another area of expertise will form a new interdisciplinary communication and additional expertise that may be required in professional activities;
- personal development by expanding individual horizons, acquiring new knowledge, approaches to learning, etc;
- the level of digital competence through the use of opportunities of information and communication technologies.

2.2. Features of the Online Platform Prometheus

Nowadays there are a number of mass open online courses, which differ in approaches to reporting, monetization, language interface etc. Among the online education platforms where information is presented in the Ukrainian language there are Prometheus, EdEra, Open University Maidan [13]. Two projects, Prometheus and EdEra, are supported by the Ministry of Education and Science of Ukraine.

Prometheus is a Ukrainian platform of massive open online course, where anyone can find a course, listen to and view the video material, read the text information online, pass the exam and receive an electronic certificate. All courses are informative, include four to ten hours of video lectures. In addition, the information which is offered to recipients is of a high quality and accessible at any time.

All courses can be divided into two categories: those that Prometheus created by the development team, and those created by the best educators of higher educational institutions of Ukraine. Our trainers on Prometheus, must follow certain rules. First, the course must include mounted video lectures. Secondly, tasks, questions, lectures – all should be well-planned. Project developers ensure user base, give advices on any issue. In addition, there is a full guarantee that all intellectual property

rights will be preserved. If the organization has a desire to create a course, but is not able to develop its own, Prometheus provides the development team to take on the full cycle of the MOOC. To make courses logically combined, developers create chains of five or eight courses. Cooperation in this area is related to the financial component. That is, after the payment for the creation of courses, the developers must mention the enterprise-benefactor within all appearances, press releases, meetings and conferences concerning the Prometheus platform.

Some researchers drew attention to the potential of a negative impact of mass open online courses in traditional institutions of higher education, as Internet technologies contributed to the emergence of a new paradigm of a parallel study, based on free access to knowledge through social networks [8], [14] . However, researchers recommend to evaluate the possibilities of online courses, to fix the problems and enhance the positive effect of their introduction into the global educational environment. Thereby, Prometheus offers to contribute to the development of mixed education, which involves the integration of online learning through MOOC in the educational process of universities and schools.

It should be noted that the number of courses offered on the Prometheus platform is increasing weekly. Part of the courses presented on the platform refers to five cycles: «Data Analysis», «Civic Education», «Preparation for External Independent Assessment», «Entrepreneurship», «Teacher Training». Most courses are off-cycle, but they are also free to use at any time. It should be noted that the number of courses has increased by 10 in recent months, and a new cycle «Teacher Training» has appeared. The number of courses for each cycle is shown in Figure 1.

2.3. An Overview of Some Online Courses to Further your Skills

Recently, student's interest on the Prometheus platform increased from general courses without committing to a specialization where they could develop more expertise and thus improve their skills. In 2018, the authors were able to complete successfully the following courses which we believe are the best for personal development and professional skills of future teachers. They are listed below:

- course «The science of everyday thinking»;
- course «Critical Thinking for teachers»;
- course «Media Literacy for teachers»;
- course «Learning How to Learn: Powerful mental tools to help you master tough subjects».
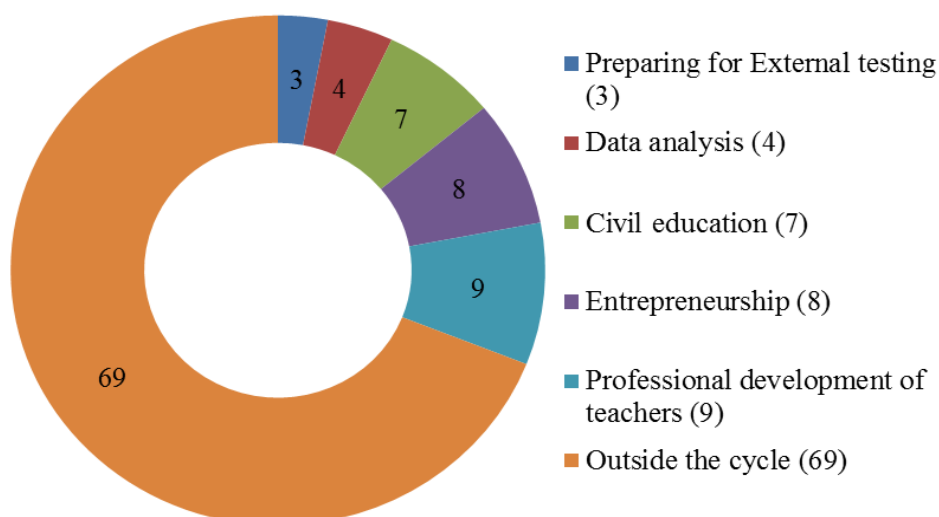
Figure 1. Cycle distribution of the number of courses on the Prometheus platform

Each course presented in their structure differs from one another not only in the number of tasks, but the types of work that is to be done and to complete successful further training and obtaining the certificate electronically. Common features and some differences of the above courses are presented in Table 1.

Table 1. Comparative analysis of the structure of individual courses on the online platform Prometheus

Online courses title	Criteria								
	number of weeks	Total score	number of tests	final exam	success rate	review information	discussion	video	creative task
«Science of everyday thinking»	12	100	11	1	50	1	12	1	-
«Learning How to Learn: Powerful mental tools to help you master tough subjects»	4	100	10	1	61	-	-	-	1
«Media Literacy for teachers»	4	100	4	-	61	-	-	-	-
«Critical Thinking for Teachers»	5	100	30	-	61	-	-	-	1

Analysis of Table 1 gives reason to conclude that the number of weeks of courses depends on the quantitative component of the course. Reviews of the information, videos, discussions implementation and execution of creative tasks are not always required, so the work with them can be introductory.

Also, number of tests significantly differs in the examined rates. People can obtain a certificate passing the tests. Sometimes to confirm the acquired knowledge it is necessary to pass the final exam. If a student during an analyzing of educational information, discussing and passing tests scored 61 points (61%) of the total number of points (100), the further course he may not complete because on conditions of the learning platform Prometheus the listener can get the electronic certificate in pdf-format. However, if the user has a high level of motivation to master specific online courses, it is recommended to complete it.

We briefly describe the online courses discussed above and justify the feasibility of studying them.

Sometimes students lack the ability to focus on one thing or prepare well for a class. This can be explained by their lack of ability to effectively process and memorize training material. This is the purpose of the online course «Learning How to Learn: Powerful mental tools to help you master tough subjects». It contains practical tips for improving learning outcomes, informing you of different ways of thinking. When learning an online

course, a user learns how to group information to remember it effectively. Information about long-term storage of information will be useful.

The whole course is divided into four weeks, ending with the completion of test control on specific topics. To successfully complete the test tasks, you must review the texts and videos in the course. The student is also encouraged to complete creative essay assignments. Examples of questions that arise in creative tasks are: What do you want to achieve in your life? What are your learning goals? What challenges do you remember in your life? What methodological literature do you use in your life?. When writing an essay, the user forms his or her own thoughts about the course material and consolidates the knowledge gained.

The *Science of Everyday Thinking* course will allow students to learn how to remember information better, to distinguish facts from fiction, to make the right decisions. During the 13 weeks, the students will become familiar with the analytical thinking tools, pass the test tasks, participate in the discussion of interesting topics.

You can significantly improve your score as you complete the course using test tasks. They are recommended to walk after watching the videos and reading the test information. Tests have significant improvements in result of the final number of points for a course in which the user can demonstrate a level of learning after watching the video and reading the test information. In each episode the user can answer 10 test questions correctly where there is only one answer. Each test question is estimated at 1 point. Accordingly, the listener can get 10 points in one episode performing tasks in the test 10 questions. Test 11 contains only five tests that obtain max. 2 points each. The distribution of points and the number of tests for each episode is presented in Table 2.

Table 2. Quantitative performance of tests in online course «Science of everyday thinking»

Indicator	test 1	test 2	test 3	test 4	test 5	test 6	test 7	test 8	test 9	test 10	test 11
number of questions	10	10	10	10	10	10	10	10	10	10	5
score on one test (in points)	1	1	1	1	1	1	1	1	1	1	2
Total score	10	10	10	10	10	10	10	10	10	10	10

An important point of the course «The science of everyday thinking» are the discussions contained in each week. Talking to other listeners, you can learn a lot about a specific topic or related topic.

Listeners can track the quantitative metrics of their own achievements. To view the overall success of the student movement you can use the progress rate, an example of which is reflected in Figure 2.

Today, the development of critical thinking in children and adults is often discussed. This category is always associated with a particular issue, activity, or subject area. Critical thinking does not boil down to unintelligible skepticism when all is called into question. It also does not provide an array of simple questions for the proposed situation. The purpose of critical thinking is to think about a particular problem or situation to formulate a particular solution, using reflective skepticism [15].

Given the urgency of the problem of developing critical thinking, you can take the course «Critical Thinking for teachers» on the Prometheus platform. The course was designed as a training for the personal growth of teachers, where they could improve their critical thinking skills. With this course you can find out what an effective teacher is, what is the secret of teaching. Future teachers can learn what is a precondition for success and psychological survival, how to successfully pursue their educational activities. There are also methodological tips for developing a methodology for developing student's critical thinking. Equally interesting is the information about modeling emotions in the educational space and highlighting the role of values in each person's life.

The total course lasts for five weeks, during which you can read the 26 lectures. Each lecture contains tests to check their knowledge of educational material after processing. If there are difficulties during the course, you can use the heading «Discussion» in the online mode where experienced specialists will help to solve problems. In this aspect, it may be appropriate to communicate online with students who have already taken the course or some part of it.
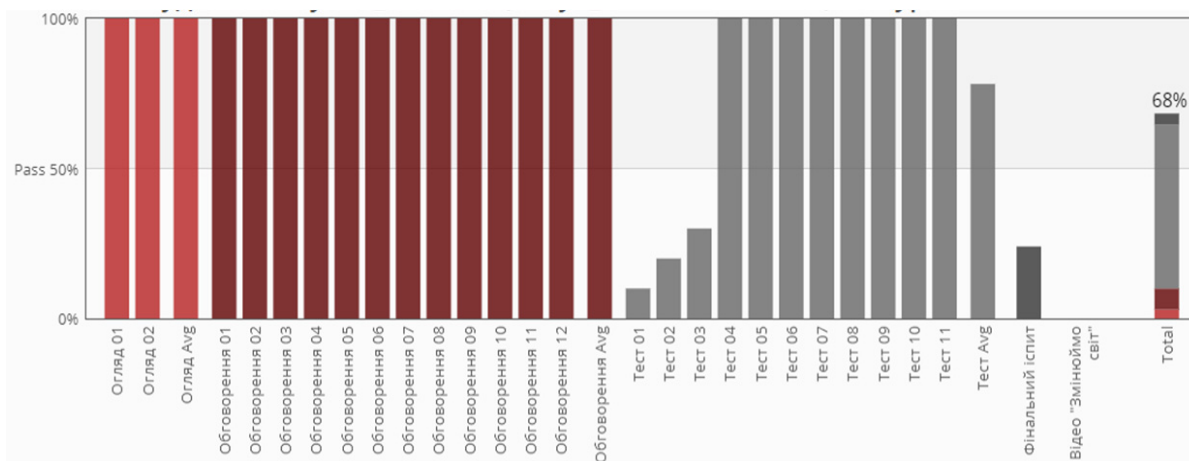
Figure 2. Progress of the listener of online course «Science of everyday thinking»

In an information society context, information plays an important role in a person's life. Various sources of information offer individuals a large amount of information to be processed. At the same time, in addition to useful information, the user gets false information that must be recognized. Personality media literacy implies the ability to critically analyze any information and fake recognition.

Through the online course «Media Literacy for teachers», future teachers will learn how media influences society, the students who are tasked by society with media education. Developer's tips on how to build media literacy for students in educational institutions are useful. The course contains information on the basics of copyright, the features of communication on the Internet, ways of forming the image of the school using open resources.

Any teacher should be aware of when a child really needs help from an adult, and when students can handle the situation on their own. These are the basics taught by the teachers of the course «Media Literacy for teachers».

2.4. Analysis of Observation and Survey Results

To determine the effectiveness of the online courses for self-development of future specialists, we conducted a survey of 23 students of 1-2 courses of the master's degree program «Ukrainian Language and Literature». All students who participated in the survey completed the courses in full and received a certificate. They were asked to answer three blocks of questions. The first block's questions were about the convenience and benefits of massively open online courses. The second block contained questions about the convenience and usefulness of the online

platform Prometheus. The third block contained questions about the informativeness and usefulness of the courses considered to enhance the professional skills.

Let us analyze the array of answers to the first block questions. When asked «What are the benefits of massive open online courses over traditional education?», students were offered several key benefits: free access, a large number of courses, and the opportunity to obtain a certificate. The result of the survey showed that 87% of students heard about mass open online courses. At the same time, 55% of respondents from the total number had previously used mass online courses to study additional disciplines. On the other hand, 15% of the students surveyed chose not to use MOOC for their own self-development at the time of the survey. The reasons for this decision are the student's satisfaction with their own academic performance and the lack of need for additional teaching material. To the wishes of the mass open online courses, students hoped that the certificates obtained would be of greater importance in their studies and employment.

The analysis of the answers to the questions of the second block showed that almost all students (92%) are satisfied with the user interface of the Prometheus platform. 45% of respondents from the total student population were familiar with Prometheus and had taken other courses. As a disadvantage, 26% of students noticed a small number of course categories. 74% of students plan to continue using this online platform for self-development.

Regarding the content and complexity of the courses offered, students were asked: «Was this course useful to you?»; «Rate each course on a 5-point scale in order of benefit». An analysis of the answers to the first question showed that all students appreciated the courses they offered.

The answer to the second question was processed according to the following algorithm:

1. The sum of points for each course was calculated.
2. The values obtained are arranged in descending order.
3. The numerical value was set for the course name, depending on the sequence number.

The sum of points for each course was calculated by the formula 1:

$$S_m = \sum_{i=1}^{i=N} V_{im} J_{im}, \quad m = 1, 2 \ldots M \quad (1)$$

where:

V_{im} - the value of the grade in points 1 to 5, which is given by the student with number i for the course with number m;

m - online course number;

J_{im} - is a discipline with number m, which is rated by a student with number i;

i - student number;

N - is the total number of students.

For the sake of calculation, assume that J (1) is «The science of everyday thinking»; J (2) – «Critical Thinking for teachers»; J (3) – «Media Literacy for teachers»; J (4) – «Learning How to Learn: Powerful mental tools to help you master tough subjects».

The calculation of the results and the location of the courses depending on the usefulness for the students revealed the following sequence: «The science of everyday thinking», «Critical Thinking for teachers», «Learning How to Learn: Powerful mental tools to help you master tough subjects», «Media Literacy for teachers».

In our opinion, this sequence of usefulness of courses depends on various factors:

- the age of the respondents;
- complexity of the online course;
- previous student experience;
- the educational institution where they study, its material and technical base;
- a specialty in which student's study.

Students who find the course interesting are more responsive to the tests and get more points as they pass. Students who are less motivated quickly respond to questions and receive a minimum score. In this situation, it is necessary to give confident answers, justifying each position in the test question. This will allow you to have more correct answers to increase the course completion rate. It is also important to explain to students the importance of completing an online course in order to increase motivation on the education.

3. Conclusion

Thus, massive open online courses can be considered as an alternative form for future teachers because they provide an opportunity to gain new knowledge and create competence from different fields of human activity. Teachers of the prestigious universities present their views in text or video lectures, giving certain knowledge that listeners can learn on their own and receive a certificate. Thousands of students can take these courses, each of them will have their own different results from others. The important advantage of mass open online courses is the principle of openness, globality and free. The absence of any barriers to learning the online platform eliminates various restrictions on age, beliefs, geographical location, financial component.

Several courses of general purpose, located in the Prometheus online platforms, provide an opportunity for personal and professional growth. Online course «Science of everyday thinking» allows to understand the different techniques how to remember information, receive and assimilate knowledge and apply them in daily life. Online course «Critical Thinking for Teachers» was created for the purpose of personal growth of Ukrainian teachers who during the course can learn how to simulate emotions in the educational space and successfully manage changes, based on reason, confidence, thinking, intelligence. Online course «Media literacy of teachers» presupposes familiarity with information about using open Internet resources for high-quality communication, allowing students, teachers, administration of educational institutions to build communication properly and use information space. Online course «Learning How to Learn: Powerful mental tools to help you master tough subjects» implies familiarity with effective ways of storing information and explore complex topics.

In the future studies, it is planned to consider online courses on the EdEra Ukrainian-language platform, which allows to creatively process educational information and improve their own qualification as a teacher, scientist and student.

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