MOOCS – SELECTED SOCIAL AND EDUCATIONAL ASPECTS

Eugenia Smyrnova-Trybulska[1], Nataliia Morze[2] and Lilia Varchenko-Trotzenko[3]
[1]University of Silesia, Faculty of Ethnology and Sciences of Education in Cieszyn, Bielska 62, 43-400 Cieszyn, Poland,
[2,3]Borys Grinchenko Kiyv University, 18/2 Vorovskogo Str, Kyiv, Ukraine
esmyrnova@us.edu.pl[1], n.morze@kubg.edu.ua[2], l.varchenko@kubg.edu.ua[3]

Abstract: *The authors explore a trend in modern education referred to as the Massive Open Online Course (MOOC), analyze the main types of MOOCs as well as current projects involving MOOC, and examine the ways in which they are used to ensure openness in education. In addition, the authors discuss opportunities for developing a MOOC using LCMS and WIKI technologies, which allows for organising and performing students' dynamic and open research activities, and describe one such actual application of the technologies. The paper also looks at main MOOC projects – international as well as national, and describes their concept, structure, principles, important characteristics and methodology of design. Furthermore, results are presented of research into students' opinions concerning the development of distance courses and in particular MOOCs, conducted at Polish and Ukrainian universities – the University of Silesia in Katowice and in the Borys Grinchenko Kyiv University. Moreover, the paper discusses general and specific principles of an effective MOOC and sets out general as well specific comments.*

Keywords: E-learning methodology, Massive Open Online Course (MOOC), cMOOC, xMOOC, Wiki technology, modern education, international and national conditions for MOOC.

INTRODUCTION

The current education system is undergoing a global change because it should fully develop individuals, prepare future professionals to live in an open information space, to form their 21st century skills, to ensure their continuous lifelong learning in informal form. There is a need for interaction between different social, economic and technological developments in the field of education in a global context, which specially develops technologies, tools and means of open education.

1. OPEN COURSES AS A PHENOMENA OF A DIGITAL SOCIETY – CATEGORIES AND DEFINITIONS

Open education plays an important role in ensuring equal access to education for everyone and in overcoming difficulties arising from the ever-changing circumstances in education, including:

1. Globalization and the increasing internationalization in higher education.
2. Increasing demand for access to higher education.
3. The changing demographics of students, increased number of adult students.
4. Wide access to modern technology and communication.
5. The need to change the prices, affordability and economic models for higher education.

The Model of Online University is one of the most promising projects to meet the objectives of higher education. Competition between universities, with increasing differentiated and innovative use of information and communication technologies, stimulates the emergence of various forms of open learning. In this model, students learn independently, mainly on free open courses.

Open courses - an open content where the term "open" is used in the context of freedom of intellectual property and allows reuse of content.

Open learning - an open practice which is regarded as a transparent activity. The difference between openness of practice and openness of content is important. Creating content takes time, effort, resources and opens numerous discussions about intellectual property rights.

The new paradigm of open education opens up opportunities for the exchange of ideas and cooperation between institutions, teachers and students locally and worldwide, and for strengthening cooperation between students and teachers. The notion of open education is related to new technologies and tools, described as a *Model of Online University* (*TEL-Map*) [1]: an open platform, open evaluation, open education, open schedule, open source, etc.

Open learning: teachers, experts and students, through various activities, generate ideas and share them in the learning process, communicate and collaborate in solving specific practice-oriented tasks. It provides students with the possibility of independent self-study based on personal needs and interests.

Joint assessment conducted by teachers and other students in the learning process, i.e. students' evaluating each other or in a group of "certification", in the request for the openness of clear criteria for evaluation of all activities.

The open platform supports a dynamic and interactive community of open education, creating and providing intuitive operation and a stable user interface for teachers and students. Computer software is based on the principle of an information cloud, and the use of open standards facilitates the exchange of data for different platforms and services.

Open education provides opportunities for the emergence of innovation in higher education that not only supports institutions in preserving the fundamental values of education, but also changes the focus from traditional teaching to learning that is based on student-centered approach and a different role of the teacher (the translator of knowledge to facilitator).

For those studying at university this model is provided by the MOOC (massive open online course) - an innovative form of education [2]. In these courses a large number of members can participate, can have free access to all training materials via the Internet. The initial goal of MOOC – "open" education and provision of free access to higher education for a large number of students from different countries. Unlike traditional online university courses, MOOCs have two key features:

1. **Open access –** anyone can become a member to attend a free online course.
2. **Scale – at present,** an infinite number of students can participate.

The article aims to examine massive open online courses, analyse major MOOC projects, ways of running MOOCs using Wiki-technology as well as analyzing a selected social and educational aspects.

2. ANALYSIS OF CURRENT RESEARCH. NATIONAL AND INTERNATIONAL EXPERIENCE

MOOCs are two different educational areas: connectivist MOOCs (cMOOC), based on connectivist technology, more focused on teachers and scientists; and MOOCs based on the content (xMOOC), based on behavioral approach.

cMOOCs devote more attention to the organization of joint training and allow to go beyond the traditional audience. This approach includes J. Siemens, C. Down, John Groom and other courses. In Ukraine, this trend has evolved from efforts of researchers B. Kuharenko, K. Bugaichuk.

The connectivist principles include:

- a variety of approaches;
- presentation of learning as a process of forming networks and decision-making;
- teaching and learning takes place all the time - it is always a process, not a state;
- key skill today - the ability to see and understand relationships between meanings of fields of knowledge, concepts and ideas;
- knowledge can exist outside the human in a network;
- technologies help us in training.

The xMOOC educational model is essentially an extension of pedagogical models used in higher education, and involves the use of video presentations, questionnaires and tests, etc. A typical example of this trend is a MOOC project called Coursera [3] and Udacity [4]. They provide a unique approach that allows students to find alternative "routes" in education.

The cMOOC open space for the introduction of non-traditional forms of education based on the needs of students, allowing students to learn from each other [5]. Online communities solve all problems by creating networks that disseminate knowledge. For example, institutions such as MIT and the University of Edinburgh use MOOCs as an experimental company that allows you to take part in the development of new models of education, experience and the support of other agencies.

Many countries are introducing MOOCs in their different institutions, foundations, societies, as well as with government support. Main MOOC projects include:
edX (https://www.edX.org/) – a non-profit MOOC project, created by MIT and Harvard University. Currently, the project includes a large number of courses, including chemistry, computer science, electronics, medicine and others. Students who achieve significant success in the subjects can pay a small fee and receive a certificate confirming the course.
Coursera (https://www.coursera.org/) – this is a commercial company. Coursera offers courses in computer science, mathematics, business, humanities, medicine, and engineering. Some universities provide a Certificate of Completion for a small fee, there are also additional courses and evaluation of teachers.
UDACITY (https://www.udacity.com/) – commercial project founded by Sebastian Trunov, David Stavens and Mike Sokolsky, offering courses in computer science, mathematics, science, and business programming. After completing the course, students receive a certificate of completion.
Udemy (https://www.udemy.com/) – project, established in 2010. Udemy offers more than 5,000 courses, 1,500 of which are not free.

P2Pu project (https://p2pu.org/en/) was launched in 2009. Process improvement and quality improvement courses are based on feedback from students and teachers.
Khan Academy (https://www.khanacademy.org/) – online learning platform, which was founded in 2008 by Salman Khan. The organization offers several thousand video lectures on various subjects, they add various tasks, assessment of which is carried out regularly.

While edX only offers courses from Harvard and the Massachusetts Institute of Technology, Coursera gives access to a platform that can be used by any university, and Udacity has its own schedule. Other projects of open education, such as Udemy, P2Pu and Khan Academy have been around for a long time and provide opportunities to anyone learning outside the traditional framework of universities [5].

For example, the Ministry of Education of Korea is also considering providing credit for these online courses, after assessing their credibility. In the second half of the year, the South Korean government will be launching massive open online courses, with lectures by well-known scholars available online, free of charge, to everyone. On Feb. 3, the Ministry of Education decided that it would make available a few dozen lectures online later this year on a trial basis and increase the number to more than 500 by 2018. These massive open online courses (MOOC) - courses available online that have no limits on enrollment and are open to everyone – include functionality for questions and debates. This sets the courses apart from the around 9,600 lectures that 183 universities in South Korea have made available so far, which take the format of non-interactive videos. Coursera, which was launched by professors at Stanford University in Apr. 2012, features 839 lectures (including three by KAIST, a South Korean university), which are being used by 10 million people. The Ministry is also considering whether to eventually provide academic credits and diplomas after assessing the credibility of the course [6]**.**

The most famous Ukrainian MOOC project is Prometheus (http://prometheus.org.ua), operating on platform edX. Trainees browsing video lectures (5-7 min.), the best teachers of the leading universities of Ukraine, will discuss with other students and teachers in the forum, check their knowledge through a variety of interactive tasks, successfully performed tasks of the course will receive a certificate [7].

Young Science Foundation (Poland) proposes an initiative to create a Polish distance learning platform offering different types of activities - both universal, open formula MOOC floor, as well as specialized courses dedicated to specific stakeholders. As international experience shows, for such an initiative to succeed it is necessary to broaden cooperation between academic institutions, researchers, companies and NGOs. "Poland MOOC platform" will be an effective tool only when it becomes a national project, bringing together different communities and having a wide range of high quality, attractive rates for different social groups [8]

In the Porto Declaration on European MOOCs [9] we can read: "*Europe must seize this moment to grab the opportunities offered by MOOCs.* MOOCS have continued to attract considerable media coverage as governments and universities respond to the open and online education movement. MOOCs are at this moment seen as a disruptive force and an important driver for change—for both better and worse. The growth of MOOCs has helped to make institutions, governments and societies at large more aware of the possibilities of open and online education. *Opportunities*: It is important to note that MOOCs remain relatively poorly defined and they should not all be assumed to confer similar benefits. Nevertheless, we

believe the open and online learning movement has great potential to educate the many in a flexible way that meets the needs of today's learners for an increasingly complex world. We must embrace opportunities to open up education in a manner consistent with European values of equity, inclusion and social justice, and to increase life-long learning and social mobility." [9]

Furthermore, the authors of these important documents stressed the *Risk* and threats posed by MOOC movement, arguing in particular: "However, we must also recognize the risks that come with the advent of MOOCs. Current evidence suggests that MOOCs do not reach those that most need access to higher education. The majority of participants who join MOOCs are already well-educated and live in developed countries. Moreover, they already have the digital and language skills needed to successfully complete MOOCs. The threats that MOOCs pose to the traditional educational system need further analysis and public debate. One threat, for example, is that only universities with celebrity academics and the financial means can develop MOOCs and offer them for free to a massive audience. Some consider this approach nothing more than a self-serving marketing exercise by a few universities with the effect of promoting the dominance of Western knowledge, a new kind of imperialism." [9]

2.1 Some results of own research

Creating tools that allow the teacher and eventually most students to understand and optimize the teaching and learning process is a difficult task. Today we offer only elements of future educational systems analytics. For example, a teacher can examine student activity journals in virtual learning environments to see how much time a given student spends studying and mastering specific material. Students, on the other hand, have access to different variants of guidelines and recommendation systems that model systems of proximal development. For example, students can use of YouTube for regular reviews of video lectures, websites can be configured to automatically compile lists of videos in related subjects.

Many higher education students are interested in MOOCs. Research conducted by staff at Duke University show that students choose MOOC for several reasons [10]:

- To support lifelong learning or gain an understanding of the subject matter, with no particular expectations for completion or achievement
- For fun, entertainment, social experience and intellectual stimulation
- Convenience, often in conjunction with barriers to traditional education options
- To experience or explore online education.

Research and survey on MOOCs was conducted among students at the Borys Grinchenko Kyiv University as well as the University of Silesia (Tab. 1, 2). The outcomes of surveys are very similar. The opinion of students about more important results of a remote learning course, in particular MOOC, as far as BGKU students are concerned, are as follows:
1) comprehensive knowledge of the chosen topic,
2) practical skills in a range of issues,
3) satisfaction of participating in the course.

In the case of US students, the opinion is the same, however, the US students rated Satisfaction of participating in the course as the most important result. Student survey results show that the theoretical material in this course is best presented as video lessons, "wiki materials" and useful links. Assessment can be carried out occur in the form of tests and

formed evaluation tools. It was found that the result of instruction using training materials for MOOC is knowledge and e-portfolio with the appropriate resources:

Options and variant of answers	BGKU	US
Theoretical materials as text	26 %	88 %
Opening theoretical material that can be filled together (wiki)	41 %	25 %
Video	74 %	75 %
Presentations	53 %	88 %
Mind map	35 %	38 %
Links to helpful resources	56 %	50 %
Forums	29 %	25 %
Discussion of issues	47 %	50 %
Practical tasks	50 %	13 %
Keeping e-portfolio for reflection of their own learning	44 %	38 %
Blogging	9 %	13 %
Forms for self-assessment	47 %	25 %
Testing	79 %	25 %
Project methodology	29 %	50 %
Group work	18 %	13 %
Other	0 %	14 %

Tab. 1. Elements of study mentioned by students, considered appropriate for the use of MOOC
Source: Own research

Options and variants of answers	BGKU	US
Comprehensive knowledge of the chosen topic	88 %	63 %
Practical skills in a range of issues	47 %	63 %
Satisfaction of participating in the course	47 %	75 %
Certificate	26 %	38 %
E-portfolio of materials and achievements for further use	44 %	38 %

Tab. 2. What should be the result of a remote learning course, in particular MOOC
Source: Own research

That is why, in response to the needs of students who are about to enter the profession, an open training module was established called "I – in the information environment of the University." As a platform for its location the Wiki Portal of Borys Grinchenko Kyiv University (http://wiki.kubg/edu.ua) was chosen. The Wiki portal created as a platform is intended for educational technology oriented on active students and faculty activities, all members of the educational process. Wiki technology can allow users, without any effort, to publish a variety of educational web resources, share ideas, re-use web resources based on contributions of many participants.

Students of the University of Silesia have considerable experience in the field of participation in distance learning courses, available on the faculties' DL platform (http://el.us.edu.pl) as well as on the project platforms for example on UPGOW project platform (http://el.us.edu.pl/upgow). Of course they were able to conduct discussion on the DL courses inside as well as outside of the profile of the university, faculties in the social media, were

able to use of digital sources at the CINIBA (www.ciniba.edu.pl), Silesian Digital Library (http://www.sbc.org.pl). This support, according to the students, is very useful and important.

CONCLUSION

During the period of active development and implementation in all spheres of information and communication technologies, particularly in education, there exists a large number of scenarios of effective educational process not only in universities, but also beyond [16], [17]. Education openness and accessibility are being used in massive open online courses and are leading to the acquisition of new free comprehensive knowledge in a usable form. MOOC tasks:

- development of a large number of electronic educational resources using transfer of university courses to a MOOC format;
- improvement of the methods of mass distance learning and virtual learning environment based on large data analytics;
- involvement in the creation of open courses employers interested in talented students;
- worldwide cooperation with universities and educational organizations.

LITERATURE

[1] TEL-Map UK HE Scenarios. [Online]. [Cit. 2014-11-26]. Available at: <http://www.learningfrontiers.eu/?q=content/context-scenarios-task-7-2>.

[2] KUKHARENKO, Volodymyr N. Innovation in E-learning: a massive open online course. *Higher education in Russia*, 2011, no 10, p. 93-99. ISSN 0869-3617.

[3] Coursera [Online]. [Cit. 2014-11-26]. Available at: <www.coursera.org>.

[4] Udacity [Online]. [Cit. 2014-11-26]. Available at: <www.udacity.com>.

[5] YUAN, Li, POWELL, Stephen. *MOOCs and Open Education: Implications for Higher Education*. [Online]. [Cit. 2014-11-26]. Available at: <http://publications.cetis.ac.uk/ 2013/667>.

[6] Many more academic courses to be freely available online. The Hankyoreh. [Online]. [Cit. 2015-02-28]. Available at: <http://english.hani.co.kr/arti/english_edition/e_national/ 676825.html>.

[7] Prometheus. [Online]. [Cit. 2014-11-26]. Available at: <http://prometheus.org.ua>.

[8] Poland MOOC platform. [Online]. [Cit. 2015-02-28]. Available at: <http://fmn.org.pl/ polska-platforma-mooc/>, <https://www.youtube.com/watch?v= LqkQDnaoY7M>.

[9] Porto Declaration on European MOOCs. [Online]. [Cit. 2015-02-28]. Available at: <http://home.eadtu.eu/images/News/Porto_Declaration_on_European_MOOCs_Final.pdf>.

[10] BELANGER, Yvonne, THORNTON, Jessica. *Bioelectricity: A Quantitative Approach – Duke University's First MOOC.* 21 pp. [Online]. [Cit. 2014-11-26]. Available at: <http://hdl.handle.net/10161/6216>.

[11] CUBAN, Larry. *MOOCs and Pedagogy: Teacher-Centered, Student-Centered, and Hybrids (Part 1).* [Online]. [Cit. 2014-11-26]. Available at: <http://larrycuban.wordpress.com/2013/02/13/moocs-and-pedagogy-part-2/>.

[12] PAPPANO, Laura. The Year of the MOOC. *The New York Times,* 2012. [Online]. [Cit. 2012-11-04]. Available at: <http://www.nytimes.com/2012/11/04/education/edlife/massive-open-online-courses-are-multiplying-at-a-rapid-pace.html?pagewanted=all&_r=0>. ISSN 0362-4331>.

[13] MACKNESS, Jenny, MAK,Sui Fai John, WILLIAMS, Roy. The Ideals and Reality of Participating in a MOOC. In: *Procedings of the 7th International Conference on Networked*

Learning 2010, p. 266-275. [Online]. [Cit. 2014-11-26]. Available at: <http://www.lancaster.ac.uk/fss/organisations/netlc/past/nlc2010/abstracts/Mackness.html>. ISBN 978-1-86220-225-2.
[14] MCAULEY, Alexander et al. *The MOOC model for digital practice.* [Online]. [Cit. 2014-11-26]. Available at: http://www.elearnspace.org/Articles/MOOC_ Final.pdf>.
[15] BRESLOW, Lori et al. Studying learning in the worldwide classroom: Research into edX's first MOOC. *Research & Practice in Assessment,* vol. 8, 2013, p. 13-25. [Online]. [Cit. 2014-11-26]. Available at: <http://mooc.pku.edu.cn/source/resource/01.pdf>. ISSN: 2161-4210.
[16] LEWIN, Tamar. *Universities Abroad Join Partnerships on the Web.* [Online]. [Cit. 2014-08-25]. Available at: <http://www.nytimes.com/2013/02/21/education/universities-abroad-join-mooc-course-projects.html?_r=0>.
[17] SZULC, Jolanta. Theoretical and Methodological Aspects of (MOOCs). Analysis of Selected Examples. In: *E-learning and Intercultural Competences Development in Different Countries*, Monograph, Eugenia Smyrnova-Trybulska (ed.), University of Silesia, Studio-Noa, Katowice-Cieszyn, 2014, p. 197-214. ISBN 978-83-60071-76-2.

Acknowledgement
The research leading to these results has received, within the framework of the IRNet project, funding from the People Programme (Marie Curie Actions) of the European Union's Seventh Framework Programme FP7/2007-2013/ under REA grant agreement No: PIRSES-GA-2013-612536 and statutory research.