ICEST 2020

International Conference on Economic and Social Trends for Sustainability of Modern Society

EDUCATIONAL AND METHODOLOGICAL ACTIVITY OF THE UNIVERSITY IN THE DIGITALIZATION CONTEXT

S. M. Shcherbakov (a), I. I. Miroshnichenko (b)*, N. A. Aruchidi (c), A.V. Kurbesov (d)
*Corresponding author

(a) Rostov state University of Economics (RINH), 69 Bolshaya Sadovaya street, Rostov-on-Don, Russia,
sergwood@mail.ru
(b) Rostov state University of Economics (RINH), 69 Bolshaya Sadovaya street, Rostov-on-Don, Russia,
iimo2@yandex.ru
(c) Rostov state University of Economics (RINH), 69 Bolshaya Sadovaya street, Rostov-on-Don, Russia,
bnatalya2000@mail.ru
(d) Rostov state University of Economics (RINH), 69 Bolshaya Sadovaya street, Rostov-on-Don, Russia,
akurbesov@yandex.ru

Abstract

The article deals with the educational and methodological aspects of higher education digitalization. The current digitalization of the economy and education opens up new opportunities for universities, but also entails competition from other forms of education, in particular, mass online courses (MOOCs). A comparative analysis of the educational and methodological works' peculiarities in the context of traditional teaching and use of MOOCs is carried out in the article. For both options, models of the teaching and learning cycle, including the development of learning and teaching support materials, its implementation in the educational setting, analysis and modification are built. By a comparative analysis of the traditional model and the MOOC model, it is shown that the significant advantages of MOOCs are the following: acceleration of the teaching and learning cycle; possibility of improving learning and teaching support materials based on the analysis of educational data; shifting the focus of analysis from teaching and learning documentation to its immediate use in the educational setting. Effective implementation of new forms of education in the universities is possible only with the reconsideration of traditional approaches to teaching and methodological work.

1. Introduction

Today, the digital economy is becoming a reality. At the same time, many "traditional" industries that are on the side of information technology are undergoing a digital transformation that is fundamentally changing their business processes, business model and alignment of forces in the competition. To emphasize the scale of the changes, they speak about the "Uberization" of the economy, with all its features:

- Change of business models;
- Individualization;
- Transparency for consumer;
- Cost reduction;
- Flexible pricing policy

The process of digital transformation is going through the service sector, transport, many production areas, and education is not left out. Domestic (Stepik Free Online Courses - https://welcome.stepik.org/ru; Open Education - https://openedu.ru/course/) and foreign educational platforms (Coursera Educational Platform - https://www.coursera.org/) attract hundreds of thousands and millions of students.

2. Problem Statement

Opportunities of the digital economy make possible a significant change in the learning process. Interest in this issue in domestic and foreign literature has arisen for a long time. Many of the problems and challenges were fairly well covered at the dawn of the development of the digital economy - 10, 20 years ago. The interest of foreign and domestic universities in MOOCs is quite high (Ainutdinova & Ainutdinova, 2017; Andreev, 2014; Klimentyev & Klimentyeva, 2015; Tolstoguzov & Shlyapina, 2017). As a rule, the goals are to increase the recognition of universities, attract applicants, and develop new educational technologies (Hollands & Tirthali, 2014; Zakharova, 2019). At the same time, there is a tendency to use MOOCs in the framework of studies at a university (mixed learning) (Semenova & Rudakova, 2015). On the other hand, sometimes the university community has fears related to MOOC technology (Grangean, 2013). The fears are usually concerning the safety of traditions and diversity in higher education.

Also organizational, legal and financial problems of MOOC integration into the educational process of universities are very often arising (Semenova & Vilkova, 2017; Titova, 2016). The main question is whether the university will be able to fit into the processes of the digital economy preserving the traditional higher education, its prestige and its role in the training of professionals. On the one hand, high school looks back on a thousand-year experience of functioning in a variety of settings and combining the flexibility with the traditions successfully retained their status. On the other hand, the challenges are quite serious and higher education is obliged to somehow respond to them (Muller, 2019).

3. Research Questions

We are going to consider the main changes that the digital economy and the use of new technologies in modern education (Ibatova & Ilyin, 2019; Karakozov & Manyakhina, 2014; Klimentyev & Klimentyeva, 2015):

- An opportunity to share learning activities (access to learning tools, immersion in the environment, help in shaping the learning track, conducting lectures, practical, seminars, laboratory exercises, project work, certification) for various types of work pieces and using microinspection. For example, it is possible to separate training from certification;

- The possibility of forming a flexible learning path for each student. One can even "compile" a training plan from modules from various universities and other sources (Chen et al., 2013);

- Global competition and the "economics of superstars." Successful courses scale well (Badarch et al., 2014). Representatives of a prestigious university, top-class practitioners, or simply successful authors of educational content can teach hundreds of thousands of students (Clow, 2013). With the advent of MOOCs, each student has a choice (Chen et al., 2013);

- Improving educational programs: deepening and accelerating educational and methodological work, as well as the ability to transfer educational and methodological costs to a large number of students.

The last point has not yet been adequately reflected in the discussion around MOOCs, and indeed it is one of the main advantages of MOOCs.

4. Purpose of the Study

The economy of MOOC is different from the economy of the educational and methodological activities of the university. In the traditional form, educational and methodological activity is a set of supporting processes that, on the one hand, consumes resources, and on the other, when implemented correctly, rises the quality of the educational process. In the case of MOOCs, launching a course is more like shooting a movie or releasing a computer game. And the role of educational and methodical work is much higher, it largely determines the success of the project (Pivnev & Kasatkina, 2017).

Of course, the creation of multimedia content and other materials, support, administration, analysis require significant costs, which must be recognized and evaluated by the university. The cost of one course can reach tens and hundreds of thousands of dollars (Hollands & Tirthali, 2014). Studying the characters of educational and methodological activities in the context of MOOCs will allow us to evaluate the prospects of universities in the context of digitalization, to understand the necessary conditions for the successful implementation of the elements of digital learning, including MOOCs, in the activities of universities.

5. Research Methods

For a comparative analysis of educational and methodological activities, we will construct models of the educational and methodical cycle in two versions: the traditional cycle used at the university and the cycle characteristic of MOOCs.

The educational and methodological cycle involves the gradual improvement of educational and methodological support as experience is gained in its use in the educational process.

The training cycle includes the following phases:

- Development of educational and methodological support;
- Running of the educational process using educational and methodological support;
- Analysis of the results of the educational process;
- Modification of educational and methodological support.

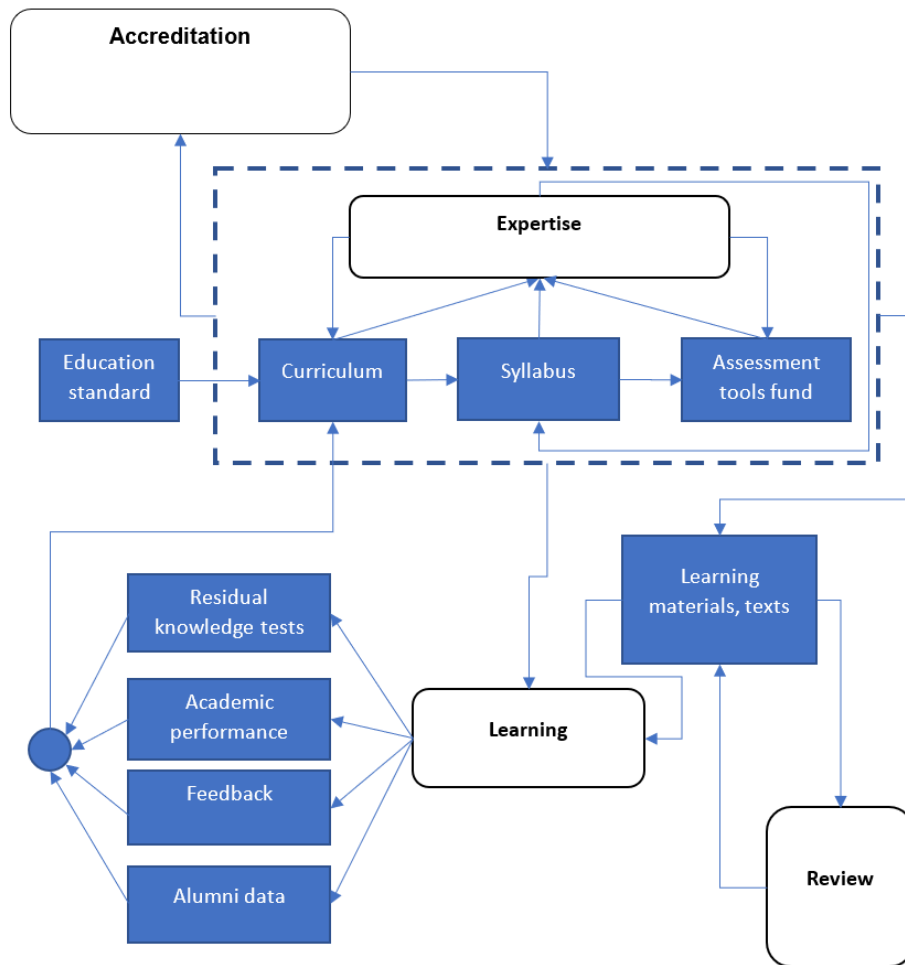The cycle of educational and methodological activities of the university is as follows, Figure 01.

Figure 01. Conventional methodical loop for University

On the basis of the educational standard, a curriculum is formed, which forms the basis of the syllabus. The latter is detailed using a fund of assessment tools and a variety of scientific materials: lecture texts, instructions for performing laboratory work, assignments for course design, questions for exams, and tests. It shows a fairly deep study of the educational program. External and internal examination is carried out. Representatives of employers are involved in the development.

Close attention is paid to all documents from the curriculum and educational program to specific funds of evaluation tools (FET).

At the same time, let us consider the feedback mechanism, which includes the following tools:

- Revisions;
- Learning experience in the form of student reviews, current performance, control of residual knowledge and other mechanisms.

We should note first of all low sensitivity and resolution and, also, a very long cycle time. The training cycle for MOOCs is presented below in Figure 02.
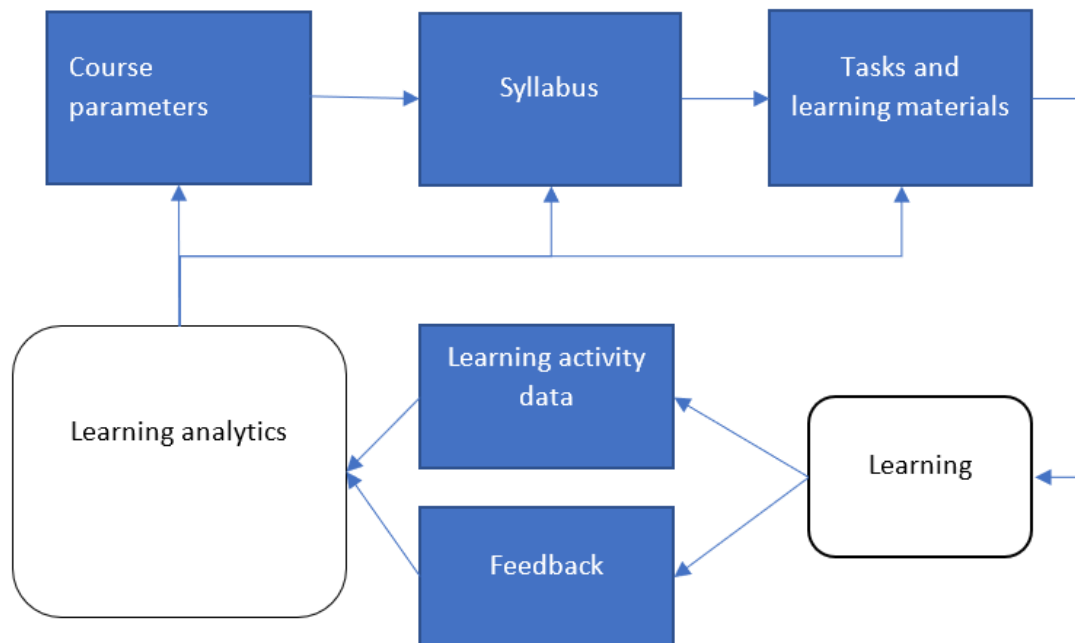

Figure 02. Methodical loop for MOOC

Here the resolution is much higher. We can, for example, determine which assignment causes difficulty for students and how to change the parameters of the previous lecture passage so that the material is better absorbed. We can understand which test causes the outflow of users. Data is available in real time.

Moreover, an experiment can be performed by providing some randomly selected users with a new fragment of the lecture and comparing its effectiveness with the old one, which the control group is developing (Kizilcec & Brooks, 2017).

6. Findings

A comparative analysis of the developed models allowed us to determine the main advantages of MOOCs in the field of educational and methodological support.

The cycle of educational and methodological activity is accelerated many times. In this way, the online course is getting better as it functions. And this is an advantage that is difficult to match in a traditional education.

In traditional education (as opposed to MOOCs), both external and internal expertise are primarily static teaching materials and materials, and not how they are actually used and work.

It is also possible to carry out an analysis that focuses not so much on the material, but on the course participants, evaluating the effectiveness of training, depending on the different characteristics of students (Bystrova et al., 2018; Semenova & Rudakova, 2015). As a result, a more exact positioning of the courses is offered.

We also note that grades within the framework of MOOCs, as a rule, do not carry crucial fate for the student, which means that they are less prone to distortion and are better fitting for the analysis of educational and methodological support.

7. Conclusion

In general, constructing and development of MOOC is something like such activities as blogging or screening the soap opera. It is unlikely that heavy procedures with standards, processes, documents and signatures for each change with planning for many years are suitable here.

Instead, common goals, flexible processes, success metrics, hypothesis testing are widely used. Even the integration of MOOCs technologies into the activities of the university with an appropriate infusion of funds will not be successful without a sufficiently deep restructuring of the processes and culture of educational and methodological activities.

The transformation of the educational and methodological activities of the university in the context of the introduction of MOOCs, needs further research, including using the methods of visual modeling and simulation.

Acknowledgments

References

Ainutdinova, I. N., & Ainutdinova, K. A. (2017). *Massovie otkritie online cursi, kak drayver dlya razvitiya distancionnogo obrazovaniya v Rossiyskih universitetah* [Massive open online courses (MOOCs) as drivers for the development of distance education in Russian universities] (MOOC). http://dspace.kpfu.ru/xmlui/handle/net/117091 [in Rus]

Andreev, A. A. (2014). Rossiyskie otkritie obrazovatelnie resursy i cursi [Russian open educational resources and mass open distance learning courses.] *Higher education in Russia, 6,* 150-155. [in Rus]

Badarch, D., Tokareva, N. G., & Tsvetkova M. S. (2014). MOOC: Rekonstrukciya vischego obrazovaniya. [MOOC: reconstruction of higher education]. *Higher education in Russia, 10,* 135-146. [in Rus]

Bystrova, T. Yu., Larionova, V. A., Sinitsyn, E. V., & Tolmachev, A. V. (2018). Uchebnaya analitika MOOC kak instrument prognozirovaniya uspeshnosti obuchayushchikhsya [MOOC training analytics as a tool for predicting student success]. *Education Issues, 4,* 139-166. [in Rus]

Chen, X., Barnett, D., & Stephens, C. (2013). Fad or Future: The Advantages and Challenges of Massive Open Online Courses (MOOCs). In *Research-to Practice Conference in Adult and Higher Education.* Lindenwood University.

Clow, D. (2013). *An overview of learning analytics. Teaching in Higher Education, 18*(6), 683–695.

Grangean, M. (2013). *MOOC Alarming Imperialism.* http://iedtech.ru/news1/imperialism-moocs

Hollands, F., & Tirthali, D. (2014). *MOOCs: Expectations and Reality.* https://files.eric.ed.gov/fulltext/ED547237.pdf

Ibatova, A. Z., & Ilyin, A. G. (2019). Izucheniye effektivnosti MOOK v sovremennom obrazovatel'nom prostranstve [The study of the effectiveness of MOOCs in the modern educational space]. *Azimuth of Scientific Research: Pedagogy and Psychology, 8*(1(26)), 126-127. [in Rus]

Karakozov, S. D., & Manyakhina, V. G. (2014). Massovyye otkrytyye onlayn kursy v zarubezhnom i rossiyskom obrazovanii [Massive open online courses in foreign and Russian education]. *Bulletin of the RUDN University, 3,* 24-30. [in Rus]

Kizilcec, R. F., & Brooks, C. (2017). Diverse Big Data and Randomized Field Experiments in MOOCs. In C. Lang, G. Siemens, A. Wise & D. Gašević (Eds.), *Handbook of Learning Analytics* [s. l.] (pp. 211–222). Society for Learning Analytics Research.

Klimentyev D. D., & Klimentyeva, V. V. (2015). Optimizatsiya akademicheskikh obrazovatel'nykh programm rossiyskikh vuzov za schet ispol'zovaniya massovykh otkrytykh onlayn-kursov [Optimization of academic educational programs of Russian universities through the use of massive open online courses]. *Bulletin of Perm National Research Polytechnic University. Problems of linguistics and pedagogy, 4*(14), 22-27. [in Rus]

Muller, J. (2019). *Tyranny of Indicators. How obsessed with numbers threatens education, health, business and government.* Alpina Publisher.

Pivnev, D. I., & Kasatkina, A. V. (2017). The role of gamification in education: the experience of creating a game module. *Humanitarian informatics,12*, 77-81.

Semenova, T. V., & Rudakova, L. M. (2015). Bar'yery pri prokhozhdenii massovykh otkrytykh onlayn-kursov. [Barriers to taking massive open online courses]. *Public Opinion Monitoring: Economic and Social Change, 3*, 37-49. [in Rus]

Semenova, T. V., & Vilkova, K. A. (2017). Types of integration of massive open online courses in the educational process of universities. *University Management: Practice and Analysis, 21*(6(112)), 114-126.

Titova, S. V. (2016). Massovyye otkrytyye onlayn-kursy v rossiyskom obrazovanii: mif ili real'nost'? [Massive open online courses in Russian education: myth or reality?]. *Bulletin of Moscow University. Series 19. Linguistics and intercultural communication, 1*, 53-65. [in Rus]

Tolstoguzov, S. N., & Shlyapina, S. F. (2017). On the production experience of MOOCs at Tyumen State University. In *EDCRUNCH Ural: new educational technologies at the university: materials of the international scientific-methodological conference (NOTV-2017)* (pp. 498-505). UrFU.

Zakharova, U. S. (2019). MOOC production at the university: goals, achievements, barriers. *University Management: Practice and Analysis, 23*(4), 46–68. https://doi.org/10.15826 / umpa.2019.04.028