

The «Flipped Learning» Technology as an Element of the New Educational Model of the University

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ABSTRACT

This paper discusses the experience, barriers and prospects how to use distant learning technologies based on the «flipped learning» in the university's educational process.

Keywords

Information technology, educational blended-learning formats, «flipped learning», «flipped classroom»

1. INTRODUCTION

Informatization and globalization are key features of the modern world. The high-speed Internet access, social networks and services Web 2.0 resulted in new forms of thinking and new skills. The research shows that, for a new generation of people, an immersion into the digital environment is a natural process; in most cases, the training of new technologies and adaptation occur intuitively. No wonder that the worldwide trend of recent years is a virtualization of the education.

The evolution of platforms using massive open online courses (MOOC) facilitates much the access to education, reducing considerably students' expenditures. As reported by the consulting company Cedar Group, the cost of distant learning services is cheaper than other educational forms by 32-45%, and the learning time is less by 35-45%. It is evident that higher education institutions, in which the paid education currently takes a large part, will not be able to compete with universities, offering free programs, for a long time. Therefore, online and blended learning formats, the use of social media are identified as measures, which are able to change the situation considerably in the coming 1-2 years in higher school, in the yearly report of the Consortium of new media and initiatives [1].

Based on the research of Russian public opinion research center (VCIOM), performed in March 2015 in 130 locations in 46 Russian regions, the invasion of Internet among young people at the age of 18-24 was 96 %. But, unfortunately, as reported by the World economic forum, Russia ranks №71 for the use of information and communications technologies in education [2]. And it is sad. What is the reason? Why in early 2000th, the possibilities of new technologies were great enthusiasm among Russian higher education institutions. Nevertheless, to speak about the successful realization of such programs today is very early. In this regard, in our opinion, key problems to be discussed are:

1. Development of a new educational model based on the «flipped learning» technology.
2. Problems how to realize this model in the university.

2. THE «FLIPPED CLASSROOM» – A NEW EDUCATIONAL ENVIRONMENT

Recently, a gradual change in the educational model occurs – a transition from the traditional, passive learning-based study of training materials by students to their involvement into a grouped active work, thereby preparing them for professional activities. Today, a developed course as

a traditional textbook or workbook is not enough. To catch the interest of a student, who is accessed to multiple electronic resources, with a simple textbook or presentation, is practically impossible. Contemporary students should have other skills and obtain these skills using electronic communications. Moreover, students forgot how to acquire information as a whole. It means that they cannot read a big textbook or watch a presentation composed of dozens or hundreds of slides. They are accustomed to use search systems, in this case, the rate of access to the required resource varies from 30 s to 1,5 min.

In a contemporary higher education institution, an electronic educational environment should be created, which provides a possibility to develop innovative learning scenarios based on a permanent interaction between the teacher and students, and an organization of collective (grouped) students' work. The permanent interaction between teacher and students should be provided using special ways of teaching materials compilation, regulation forms and communications methods.

One of new models, which is widely discussed nowadays by specialists, is a model of the «flipped classroom» based on the «flipped learning» technology, which is a special educational blended-learning format.

The flipped classroom is such a pedagogical model, in which a traditional lectureship and issue of control tasks are proceeded «alternatively»: students look through short video lectures and other materials at home, and projects and issues are discussed in classrooms, as well as discussions are performed.

Experience in working with full-time students showed the effectiveness of the «flipped classroom». Students learned materials at home, fulfilled tasks, discussed issues arisen during classroom activities and developed projects during the grouped work using programs learnt, and defended them. The teacher played a role of a consultant within this pedagogical model, while encouraging students for a collaboration. The benefit of this technology is also the fact that the student can look through video materials, texts of lectures, textbook and other additional resources repeatedly. The student is responsible for material acquisition and fulfillment of tasks; it determines his successful work in the classroom.

How to realize the «flipped learning» in a higher education institution? In this regard, the teacher should structure the material of his subject and make a list of video clips for each topic, which can be proprietary, or taken from open educational resources. While preparing the course, the support of students with a full set of training materials, which, besides video clips, include texts of lectures, control resources, additional material, for example, as links to other resources, should be thought over. The prepared course is published on the educational portal or site.

Communications may be realized as a forum (asynchronous interaction), chat or webinar (synchronous interaction). It is very important to provide a collective activity on a project or issue online. There are many

programs currently, which allow realizing the technology of Wiki, for example, the cloud service Wikispace.

The use of this service for educational institutions is free of charge. It is certainly a hard work for the teacher on the preparation step of subject elaboration, but it will allow providing a more effective training process, the course materials prepared in such a way may be used multiply. The process of updating and introduction of required changes into materials published runs much easier.

The teacher role in the model of «flipped learning» seems to change significantly. While elaborating the course, one should find open educational resources, handle this material according to assigned educational tasks, elaborate educational materials and grouped work scenarios, as well as encourage students to work actively. The training course should include fragment of video lectures, external electronic resources, tasks directed at the grouped work.

3. «FLIPPED LEARNING» TECHNOLOGY IMPLEMENTATION EXPERIENCE

At the Humanitarian Faculty of the Perm National Research Polytechnic University (PNRPU), a training and education portal was established 2008, on the initiative of the Department «Management and marketing» [3]. Its major target was the information and methodology provision of the educational process, as well as the access for portal users – students, methodologist and teachers, also the possibilities of interactive communication. The implementation of the portal project was accompanied with information, methodological and organizational support to provide gradually the portal with information resources. As a platform for its implementation, a freeware shell Moodle was chosen to provide a clean licensing of the development.

For most students, who grew up in the information society, the portal provides an ordinary environment, which is a natural platform to communicate with their peers in social networks. Today, all full- and part-time students are registered on the portal. Practically, all the questions of the organization of teaching process (class schedule, curriculum, tutorials, immediate notifications etc.) are decided online. This form is particularly effective for full-time students.

Currently, more than 80 electronic courses for department specialties are published on the portal, methodologists' pages are set up, as well as pages for teachers and student groups, where students communicate with each other, also students with methodologists and teachers etc.

An «electronic dean's office» is created to organize teaching process (registration of users, setting of groups, curriculum).

The portal homepage is a peculiar kind of entrance into the virtual educational environment. This page shows information of the portal, links to sites of university departments, and a panel for registration and login of registered users. Moreover, this page shows some gadgets: weather, news feed, schedule of webinars performed by teachers. Webinars may be available both free, and with restricted access. We use a freeware platform onwebinar to give webinars [4].

The practice of webinars showed their effectiveness in the teaching process. A well-prepared presentation for the lecture, video clips included, a permanent chatting with students, and inquiries provide the interest of students and do not allow being distracted by other actions, what is typical for a traditional lecture in the classroom.

A great part of training materials published on the portal is not available for external users. Each student is

registered in his own group. A curriculum is developed for a semester for each group, the students are therefore allowed only for those subjects given in the curriculum and on the page of group's methodologist. The login is carried out through the virtual students' page, where a forum for communications is open, and a student personal page (profile) is given.

The first practice with the use of portal showed that teachers had shared their experience with each other more active, there was a possibility to determine the activity rate of each of them in the field of innovations.

So, the portal is an instrument for development and implementation of innovative educational technologies into the process of students' independent work and teachers' professional advanced training. The benefit of such portals is that materials given there are updated permanently and always on the top of their relevance. Students may use resources of these projects as an additional library of training materials. The portal and the use of interactive training methods allow preparing teachers and students for life in the information society, which changes constantly and runs dynamically – new experience appears every day, therefore there is a permanent need to learn new skills.

4. BARRIERS FOR THE REALIZATION OF «FLIPPED LEARNING» TECHNOLOGY IN THE UNIVERSITY

In spite of positive results of «flipped learning» technology implementation, there are some issues, which hinder its wide expansion in the educational process. The new yearly report of the Consortium of new media and educational initiatives [1] identifies major barriers and factors, which hinder the active implementation and adaptation of new e-learning technologies in educational institutions. In our opinion, two of six barriers are the most important – insufficient teachers' digital literacy and no rewards for the use of new technologies in the teaching process.

The term «digital literacy» is currently not only a skill how to use PC and some software. The contemporary understanding of «digital literacy» is based on a combination of communication skills and handling with information using Internet services, including Web 2.0 services and the use of such skills in the teaching process. Social services technologies open new possibilities for teachers. They include both Wiki-platforms for grouped work, and video conferences, infographics, etc. Therefore, teachers should be not only well informed in their professional field, but also know how to use these technologies for the work with students.

Unfortunately, many teachers of higher education institutions have poor skills in above technologies. Moreover, a great part of teachers consists of people of the older generation, who have knowledge, but usually have no stable working knowledge with modern information technologies. At the same time, in spite of the wide recognition that the digital literacy needs development, this aspect is represented thinly in teachers' advanced training programs.

The second issue – teacher's motivation – is also acute. Today, the use of new technologies in the teaching process depends in most cases on the internal motivation of the teacher. No rewards for implementation and use of new technologies in the teaching process lead to the fact that traditional teaching methods remain of top priority.

We think, one more reason why teachers have no interest in the use of possibilities of new technologies is related not only to the age or insufficient digital literacy, but to the traditional conservatism of pedagogical society, when

assessment of teachers' activity neglects practically the use of innovative technologies in the teaching process.

So, the experience of implementation and functioning of the electronic educational environment at the department provided a conclusion that there are some issues to be solved to use it effectively.

Firstly, a very important question for teachers is about the support of higher education institution management in the field of e-learning application, mainly, about financial rewards. At the moment, the development of subjects to be published on the portal depends fully on the teacher's internal motivation.

Secondly, there is a need for a teachers' support center at the higher education institution, which would offer consultations on the use of E-learning in the teaching process, help to make electronic teaching and learning materials. Such centers exist in many foreign universities, and resources required to realize their activities, are committed.

Thirdly, there is a need for teaching aids on the use of information and communication technologies and development of e-courses.

The solution of above issues will allow teachers increasing their own effectiveness significantly, improving quality of training and unlocking their own professional potential.

REFERENCES

- [1] The NMC Horizon Report: 2014 Higher Education Edition. URL: <http://www.nmc.org/publications/2014-horizon-reporthigher-ed>
- [2] The Global Information Technology Report 2010-2011. URL: <http://www.weforum.org/reports>
- [3] Education Portal of the Higher School of Business and Economics, Perm National Research Polytechnic University. URL: <http://portal-hsb.pstu.ru>
- [4] OnWebinar. URL: <http://onwebinar.ru>