Integration of Cloud Services into Educational Environment of a Training Course

N. I. Batrova  
Kazan (Volga) Federal University  
\textsuperscript{1} Senior teacher

A. H. Khusainova  
ORCID: 0000-0001-9615-6795 Senior teacher

M. A. Lukoyanova  
ORCID: 0000-0002-5630-0876 Senior teacher

Abstract

In article the problem of humanitarian specialties students training in the Pedagogical Education Direction, capable to adapt in promptly changing information society is considered. According to the Concept "4T" accepted at the Kazan Federal University a search of new approaches to the organization of educational process on the perspective information and communication technologies basis is relevant. Authors have designed and approved model of a training course integrated educational environment using the cloud services of the Web 2.0 directed to forming common cultural and professional competences for students according to the Concept "4T". This model was developed on the basis of the connectivism principle and the SmartEducation technology. Student training has been organized in the interactive educational environment on a platform of Google services using methods of project training and technology of the "overturned" training. 789 students of Philology and Cross-cultural Communication Institute of Lev Tolstoy Kazan Federal University have taken part in a pilot study. The GPA in the control groups which are trained by a traditional technique made 72,43 points. In the experimental groups which are trained in the interactive educational environment, the GPA made 86,78. The received results confirm efficiency of the approach offered by authors of article in humanitarian specialties students training. The developed model can be applied in case of creating the educational environment of different subject matters for various specialties students training.

Keywords: Google services, the educational environment of a training course, pedagogical education, smart-training, inverse training, the Web 2.0 services.
Introduction

In the conditions of promptly changing information society in the education which is based on competence-based approach it is important to organize training of students so that upon graduating from university they had actual knowledge, applied skills and professional competences. At the Kazan Federal University within pedagogical education the Concept of four "T" is implemented. "If to speak about the Concept of four "T", then it is necessary to explain: first, students training "is transformed" today, strongly differing from the one 10-15 years ago. This student is in absolutely different information field, in different ethno-culture because of a big inflow of migrants, student constantly faces other languages, cultures. Secondly, we have a "transformed" education: it is necessary to look for other forms of training organization as today it is about competence-based approach, and it is necessary to understand how to create these competences. The third "T" – the transformed teacher: capable to answer challenges of today the teacher is one of the main objectives. And at last, fourfold "T" – transformation of the most pedagogical education: we shall know how it is to train creative, modern teachers correctly" [Tayursky, 2016].

For successful performance within this concept at the university level development and use of special-program providing on the basis of new perspective information and communication technologies is being issues, for example, use of the LMS platforms are resolved. Teachers in the activities in addition to use of LMS which elements often are integrated into training material address public cloud web services 2.0 [Nurgaliev, etal, 2014].

Solving a problem of organizing educational environment using the cloud services of the Web 2.0 according to the Concept "4T" directed to forming common cultural and professional competences for students was the main objective of article authors.

In order to create the educational environment of a training course the single platform – the Google services available to all participants of educational process on any device for viewing and information processing - was used. In student training methods of projects and Smart Education, as well as technology of "inverse training", allowing to form general cultural and professional competences of humanitarian specialties students including practical skills on the speech-information tasks, competences of project and research activities have been used.

Designing and testing opportunities of the integrated educational environment of an educational course using cloud services was performed in 2013-2015. 789 students of 1-3 courses and undergraduates of humanitarian specialties of the Kazan Federal University have taken part in a pilot study. Training took place in control groups (405 people) by a traditional technique, and in experimental groups (384 persons) training took place in the educational environment using methods of project activities, Smart Education and technology of "inverse training". The GPA in control groups made 72,43, in experimental groups – 86,78. The received results have allowed authors of the article to be convinced of efficiency of the constructed model of the integrated educational environment and the applied training methods with use of the Web 2.0 services. Experience of this model use shows that research results can be extended to teaching the majority of training courses. A benefit of the provided model is in openness of resources and their availability to students, as well as in an opportunity to update and supplement educational content. For students such model of training makes a training course more attractive due to use of mobile devices and cloud resources.
Training Data And Methods

Research on application of the Web 2.0 cloud services was conducted by authors in the course of teaching disciplines "Information technologies", "Internet technologies", "Mathematics" [Mathematics, 2016] to students of humanitarian specialties and disciplines "Innovative processes in education", to the undergraduates who are trained in the directions "Pedagogical educations". In research the scientific and methodical-and-training materials developed by authors on this problem, available in open internet-sources were applied.

Smart education

Smareducation is a training in the interactive educational environment with existence of access to information sources which are in free access; easily adaptable for needs of each student. The purpose of smart technologies use consists in providing availability of education and the maximum identity of a training trajectory for everyone [Tikhomirov, etc., 2012].

The teacher role at the same time consists in the organization and management of educational process. He is no longer the only source of information for the student.

Technology of "the inverse training"

The technology of "inverse training" assumes acquaintance of students with video lectures at home prior to occupation with a possibility of online polls. Direct reaction to online polls and a possibility of repeated lectures viewing will help clear the complex moments. And in audience there is a direct discussion of a subject, attempt to find the solution of some problems, online poll, time for making exercises, discussing projects, discussions, creating art projects, etc. Videos of lecture often are considered as a key component in the inverse approach, such lectures are created now by the teacher and posted online, or stored in some online file hosting service. Availability of viewing video has extended, so today this allows to make it an integral part of the inverse training concept.

The concept of inverse training relies on such ideas as active training, involvement of students in general activities, the combined training system and podcasts. The value of inverse training technology consists in opportunity to use school hours for group occupations where students can discuss lecture content, check the knowledge and interact with each other in practical activities. During studies a role of the teacher is to act as trainer or consultant, encouraging students on independent researches and joint operation.

Project Methodology

The method of projects is a method of achieving the didactic purpose through detailed development of a problem (technology) which shall come to the end with quite real, tangible practical result arranged in one way or another [Polat, etc., 2007]; it is a set of methods, actions of students in their certain sequence for achievement of an objective – the problem resolution, personally significant for the student and arranged in the form of a certain end product.

For implementation of the considered methods and technologies fast Internet access and device is necessary for viewing information (the computer, the laptop, the tablet, the smartphone, etc.).
Training materials and services

All variety of available resources has to be integrated on the basis of any platform which choice depends on requirements and preferences of the educational process manager. We have stopped the choice on public Google service. On the chosen platform an educational environment of a training course has been created (fig. 1).

Fig. 1. Structure of the training course educational environment

The educational website of a training course contains access to educational content, references to external resources, to the documents created by participants of educational process, pictures, video, questionnaire, tests etc. The textbook created by the teacher can be published in one of social media. Our textbook has been placed on the Internet through the issuu.com service. This service has allowed students to summarize the text and to keep chosen fragment in cloud storage, sending the work via mail services, for example, G+, or through e-mail.

The Smart-textbook created by the student (fig. 2) is an abstract of a training material in the form of schemes, pictures, references to the works created by him in cloud services. The student created own educational content which was easily controlled and assessed by the teacher who had an opportunity to look through a virtual workbook of the student and to comment on records in it. If necessary, the student introduced amendments in the performed works. In this case, the purpose of the teacher consisted not in search of mistakes and decrease in assessment, but in an opportunity to point out the defects, to give to students time for their correction to achieve the best result.

Fig. 2. The Smart-textbook of the student on the studied discipline

Training Course Model Of The Integrated Educational Environment

The approach offered by us assumes association of a large number of resources including social media. There is a huge number of libraries containing books of various subject which are available from any devices having Internet access. We have an opportunity to form own collections of books, for example, the "shelf" in the Google Books service. On the basis of Google Drive it is possible to organize a repository where the course materials can be found or created by teachers and stored for students. There is an opportunity to regulate access levels to documents viewing before editing. Sources of information have to be attractive to the student, have to motivate studying of new material. Therefore, it is expedient to find new forms of giving educational content such as Internet television for educational purposes.
project "Academy" on tvkultura.ru, univer.), remote educational MOOC resources (intuit.ru, coursera.org), educational video on YouTube EDU and others. The student has to have access to quantity sources of information on a different genre that will allow to choose the most available and attractive content.

In the educational environment the differentiated detailed designs have special value. At the beginning of discipline development the student poll on discovering the level of information competence according to which detailed designs of different level of complexity are offered to the student is carried out. The student has the right to choose the task within his powers. However, in order to form necessary level of common cultural and professional competences it is necessary to motivate the student in choosing task of more difficult level through grade system assessment, through the competitive moment or through joint activity together with the teacher and other students. For example, if students are involved in group design activity with application of information and communication technologies, then such skills and competences as ability to work in team, to find necessary information in the Internet, to plan work, to estimate the work and work of other team members, to represent results of activity and to carry out public protection of projects with application of information and communication technologies is a result formed. [Fahrutdinova, et al, 2014].

The services of e-mail, chats in documents of Google providing an exchange of messages in case of joint operation over the document are applied to creating conditions for communication, exchange of information, consultations. Hangouts which are built in the educational website give the chance of online consultation when studying new material or in case of task performance. Also as space for communication serves the group is organized in service Google groups.

Control and self-checking of training results will easily be organized through Google Forms, access to which the student gets from any device at any time. Each student is given an opportunity to present results of the work, for example, based on the websites of Google or through cloudy Boards of notes. So, test works (Web quests) for students of Institute of Philology and Cross-cultural Communication of Lev Tolstoy Kazan Federal University for discipline of "Internet technology" are placed on the cloudy Padlet resource ["by ICT in OKPD. Web quests to offsetting", 2016].

For successful implementation of a smart-education method it is important to break a psychological barrier so that students have get used "to deal" with cloud services, used them as the convenient and useful tool, a tutorial. Then there will be no contradiction with traditional training methods. As a result of project activities it has been established that students are not afraid of innovations in the field of information and communication technologies and actively use them as the working tool in professional activity. The model of the integrated educational environment of a training course (fig. 3), turns on 2 main units:

- work in audience;
- work in virtual space.
On a basis of functioning model of the integrated training course educational environment the connectivism principle which is described in Doun's and Siemens works as follows is underlain: "training is including yourself in a network. Students progress in education, interacting with practices, comes through copying models. This process of copying activity is supported by a reflection and corrected by other community participants. Training takes place in communities where educational practice is participation in social life. Training activity takes place in the course of communication of the student and other associates. This communication during an era a web 2.0, consists not only of words, but also images, multimedia and many other things" [Chronicles. Connectivism, 2016].

The teacher and students conduct joint activity within a training course on the Internet as equal partners.

Service of the social bookmarks Symbaloo became an integral part of an educational environment (fig. 4).
The Symbaloo service helps the teacher to perform search of necessary information, to classify collected materials, to organize and show the students information space of a training course, to organize a homepage of the browser in the way, convenient for himself, to impart the saved-up experience, to use resources of colleagues in the course of self-education and many other things from a single resource. Students, in turn, use social bookmarks for the presentation of own researches.

Tasks of a professional orientation are of the greatest interest to students philologists: the analysis of the text work, including the visual analysis with use of cloud services of Wordle, Wordcloud, Tagul, etc.; the translation of words, phrases, texts, site content with use of GoogleTranslate; finding of word meaning or studying its origin by means of online dictionaries [Fatkhullova, etal, 2013]. The great interest causes Google Scholar which gives the chance to search data collections of scientific articles, theses that saves time by searching necessary information and assumes more relevant search results.

Upon termination of studying the discipline students have own smart-textbooks in which abstracts of the studied subjects and a portfolio of the executed projects are collected.

"Technical resources of cloudy instruments of the single educational environment maintenance imply opportunities for consolidation through the Internet in rather big groups of trained for carrying out interactive training, provision of broad access to multimedia materials of training events and the organization of additional consultations and seminars with the pedagogical workers who are far from the students. Besides, use of cloud means will give
benefits to the organization of available training for physically disabled people" [Shevchuk,2014].

Conclusion

Authors have designed and experimentally approved model of the integrated educational training course for students of humanitarian specialties on disciplines of a basic unit of a general education cycle using the cloud services of the Web 2.0 according to the "4T" Concept directed to forming common cultural and professional competences for students. The following components are developed for creating and functioning of the integrated training course educational environment model: content of disciplines, the principles of model functioning, methods and technologies of training, resources and services providing productivity of process forming for students of common cultural and professional competences, including also information competence which is an important part of professional competence in general.

Scientific and methodical student training process ensuring for humanitarian specialties on disciplines "Information technologies", "Internet technologies", "Mathematics" and disciplines "Innovative processes in education" for the undergraduates who are trained in the directions "Pedagogical educations" has been developed. The complex of practical implementation means for the educational environment integration model is its part: specially developed system of tasks for practical mastering working methods with the virtual environment of training and applications placed on the Internet, educational and methodical benefit, rating system of the current and final control of competences on each discipline, as well as the recommendation for teachers on technique of training students of humanitarian specialties in disciplines of a basic unit of a general education cycle.

Summary

Speaking about efficiency of the approach offered by authors: the results of student's conferences for which students carry out research projects on human studies use of information and communication technologies and the special software were huge.

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