

The Use of Cloud Services for Learning Foreign Language (English)

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Abstract. Research goals: determine particularities of using cloud services in English communicative competence forming process and develop the model of distance learning system (DLS) and cloud services interaction that improves the quality of the learning process. **Research objectives:** to identify, describe and develop methodological features of the model of distance learning system and cloud services interaction; consider on the examples the methods of use cloud services in DLS in foreign language training, aimed at English communicative competence forming process of students; experimentally investigate the level of using of cloud services in distance learning and identify ways of improving its use. **Object of research:** methodical system of foreign language students' training of language faculties in high institutions. **Subject of research:** methodological model of the model of distance learning system and cloud services interaction in English communicative competence forming process. **Research methods used:** review and analysis of scientific publications, psychological, educational and instructional materials, modeling of complex systems, questionnaires, conducting pedagogical experiment. **Results of research:** The model of distance learning system and cloud services interaction was developed and the methodological particularities of this interaction are defined. Methods of using cloud services on the example of the distance course "Practical English Course Upper Intermediate" describing the methods of doing the tasks in English communicative competence forming process of language faculties were considered. As a result of experiment it was found there is a low level of use of cloud technologies in distance learning is a consequence of a lack of awareness of teachers in the possibilities of its use.

Keywords. Cloud technology, cloud computing, distance learning system, SaaS, PaaS, electronic educational resources, LMS «Kherson virtual university»

Key Terms. Quality Assurance Methodology, Standardization Process, Knowledge Management Methodology, Knowledge Management Process, Teaching Methodology, Teaching Process

1 Introduction

Due to the rapid development and implementation of the Internet in everyday life and the simultaneous designing of distance learning systems (DLS), there is the opportunity to approximate the traditional learning to distance one. Today, through the designing of Internet-services, which were developed and used a few years ago, there are new capabilities for teachers to organize the distance and mixed (blended) learning to improve the quality of the educational process. Problems of design, implementation and use of cloud technologies in higher education belong to perspective areas of informatization of the education system as a whole [1].

The rapid development of technologies, the necessity to develop models, methods of most appropriate use and implementation of cloud tools and services in educational process are the factors that encourage the further development of this problem [2].

The term «Cloud computing» was first used in 1993 by Eric Schmidt to describe services that support distantly different data and applications hosted on distant servers.

«Cloud computing» is the technology of data processing, in which computer resources and capacities are available to the user as an Internet service. According to the official NIST (National Institute of Standards and Technology) definition, "cloud computing is a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction"[3].

Let's consider the basic directions of development of cloud technologies which are used in education. According to the technology and functionality the services are classified in [4]:

1. SaaS – Software as a Service. This type of cloud services allows using the Internet software in the education. In learning English, it provides access to email, various training sites, blogs, video and audio materials in the Internet. For example, the service Google Apps for Education provides Internet technologies and tools to create information-educational environment of the institution, Microsoft Live@edu is used to equip students with the necessary tools of online interaction without additional costs for software, hardware and support [5].

2. PaaS – Platform as a Service. As the services it is provided by a set of software services and libraries that you can use to develop the own electronic educational resources (EER). It is provided an integrated platform for development, testing and support of web applications that are based on cloud computing. In education, the service is used to develop integrated applications that are used "in the cloud" for managing of educational projects, implementation of joint researches, such as designing the virtual laboratories of share access. Learning Management System (LMS) can be represented in the "cloud" through this type of service.

3. HaaS (Hardware as a Service) – it is provided by the hardware capabilities, such as a certain amount of memory, processor time, bandwidth and so on.

4. IaaS (Infrastructure as a Service) it may be seen as HaaS technology development that provides the certain systems underlying in the construction of other systems, such as virtualization tools, load distribution etc. IaaS may include hardware (servers, storage, client systems and equipment); operating systems and system soft-

ware (virtualization, resource management); communication software between systems (e.g. integration into network, management equipment). The use of the technology in education provides an opportunity to get rid of the need to support complex data infrastructures, client and network infrastructures.

5. CaaS (Communication as a Service) – new service, which is the development of SaaS technology. As a service it is provided by communication services, for example, IP-telephony, mail and chat. For example, as a service to the institution it is used e-mail.

6. DaaS (Desktop as a Service) – users receive the virtualized workplace completely ready for work. This service is the development of SaaS technology, which is widespread in recent years.

Cloud technologies are used in education because its enable significantly reduce the costs, solve the problem of equal access to the information technologies because the powerful resources can be obtained via the Internet. In addition, it is provided the opportunity to meet individual needs of the student and academic trajectory by modeling his activity and selection of appropriate resources based on processing of large amounts of data and mobility training [6].

There are some disadvantages of cloud technologies, which are mainly technical and technological nature. These disadvantages are limiting of functional properties of software compared with local analogues, the lack of native providers of cloud services (Amazon, Google, Salesforce etc. are concentrated in the USA), the lack of national and international standards, and the lack of legal framework applying cloud technologies in education.

Currently there are four models of cloud deployments:

- Private cloud – it is used to provide services within the organization that is both customer and service provider. It is the variant of cloud concept embodiment when the organization creates it's for itself in limited use;
- Public cloud –it is used to deploy of the infrastructure and software to provide access outside of boundaries of institution's infrastructure;
- Hybrid cloud –it is two or more different types of clouds;
- Community cloud –type of infrastructure, designed for use by the specific consumer society of organizations with common objectives. Examples, platform Windows Azure, Web services Amazon, Google App Engine and Force.com.

We study public and community cloud systems.

The main aim in foreign language learning in high school is to develop communicative competence, i.e. the ability to get enough complete information at reading foreign texts, the ability to understand speaker and express own opinion, point of view orally and in writing.

Thus, the feature of the subject "Foreign Language" is not knowledge about the subject, that is knowledge about the language (linguistic competence), but the development of certain skills and abilities of different types of language activities based on knowledge of the way of activity (communicative competence) [7].

Cloud technologies make possible to integrate various active learning methods in the information environment. Let's consider the most popular and affordable for users Internet services:

- Google Docs is an online office to create various documents for share access;
- OneDrive - service of Microsoft, it is similar service of Google Drive;
- Scribd - Internet service of cloud document storage, which allows publishing documents prepared in the most popular formats: Microsoft Office, Open Office, Adobe Acrobat, etc.;
- Slideshare - online storage of presentations;
- Google Scholar - search engine of educational and scientific publications;
- YouTube - a service that lets download and watch videos in the browser;
- Skype - a service that provides audio and video communication;
- Wikipedia - online encyclopedia, based on wiki technology;
- Blogger - Internet-service in the form of online journal (or blog);
- Facebook, VKontakte - a social network that provides the ability to create study groups, communities, etc. [8].

2 Distance Learning System in Language Learning

Information and communication technologies, including distance learning technologies rapidly integrated into the traditional educational process of higher education. The actual problem is the use of distance learning in foreign language training, including the formation of foreign language communicative competence.

The problem of distance learning (DL) in learning languages is studied by number of scientists: V.Yu. Bykov, V.M. Kukharenko [9], A.A. Andreev, V.I. Gritsenko, K.Yu. Kozhukhov [10], S.P. Kudryavtseva, N.V. Mayer, M.G. Moor, E.S. Polat [11] A.V. Hutorskoy and others. According to K.Yu Kozhukhov, distance learning technologies can realize methodically organized and purposeful leadership of training and cognitive activity of students and it is based on using a wide range of information and communication technologies [10, p.11].

Let's consider the definition «distance learning». There are a set of definitions of «distance learning» We consider only the most accurate definition in our opinion. Distance Learning (DL)– the interaction between teachers and students at a distance that covers all components inherent of the educational process (purpose, content, methods, organizational forms, and teaching aids) specific means of Internet technologies [11, p.15].

DL is complex educational technology, combining the achievements of pedagogy and psychology of didactic opportunities of information and telecommunication technologies that use the computer as a carrier of information and means of communication. DL meets all modern features of society and its purpose is forming the creative person [12, p.20].

However, distance education, e-learning are generally used in combination with other types of teaching, such as face-to-face teaching in a class or mail correspondence. In 2014, more than 6 million students took at least one online course in the world. 60% of four-year private colleges and universities offer online classes as well [13].

There are a set of the advantages and disadvantages of e-learning, especially in language learning. Let's consider them.

Actually, there are a lot of advantages of distance learning. First of all, students can study at their individual pace. They can spend time over something that puzzles or intrigues them before they proceed. That's something they cannot do if the teacher controls the pace of students' learning or the pace of a class group.

Students can arrange their week to suit their work and family commitments. That means they can schedule the studies at times that would be awkward or unsuitable for teachers or their fellows students. Contrariwise they can always delay their studies by a week, month or even more.

It should be mentioned that the positive sides of the commercialized popularity of foreign language distance learning in Japan are, as Toshiya Kawame suggests, that the process of producing teaching materials has been shared not only by teachers concerned, but also openly by non-specialists, and that students are expected to develop their own individual styles of learning, since distance learning expects users to activate and make best use of it [14].

Also students explore the freedom that distance makes possible, they begin to realize that they control the content and emphasis of what they study, to a lesser if not a greater extent. This one is probably the most important advantage because only students decide what they would or would not do.

Let's consider disadvantages of distance learning. In fact, learning at a distance can be very isolated experience. One consequence of that isolation is the absence of social links, whose importance in language learning is surely under-estimated in communicational situations.

When learners are at a distance, teachers cannot do things that they took for granted in the face-to-face situation. For example, it is impossible at a distance for the teacher to keep a casual eye on the learners' performance and progress. Distance is furthermore a severe constraint on the development of a relationship, perceived or otherwise, between the teacher and the learner. And a distance is a disincentive to corporate activity, and the learning together which often happens naturally and informally in a class.

Because learning happens at a distance, it follows that sharing, borrowing, returning, issuing and other such functions involving books, paperwork and assignments, take time. The interruptions to learning which that delay introduces can be frustrating and de-motivating [15].

So, the successful language-teaching is built on a strategy that aims at creating an interest in a language and culture and then uses technology as a means of allowing pupils to communicate with others, use interactive resources and exercises and be creative in the target language. Just like anywhere else, distance learning has created new methods of language teaching; it has promoted new attitudes to the acquisition of foreign languages; and it also has opened up new possibilities of language education.

Thus, distance learning for language is not quite the same as learning of other subjects. Learning a foreign language includes not only the mastering of grammatical knowledge and comprehension skills, but the development of interactive communication ability (competence). With the help of distance learning systems, which has all communicational and virtual tools teachers can possibly create a virtual reality in which students can develop communication skills.

3 The Use of Cloud Services in Learning a Language

We consider the main cloud services that we use to create English communicative competence. So we chose Blogger, Wiki, Google Drive and social network VKontakte.

In our research we are developing the distance course (DC) «Practical English Course Upper Intermediate» based on the textbook with the same title and authors are L.Chernovaty, V. Karaban and others. The course is for third year students of philological faculties and specialty «Translation» of higher educational institutions. This course is created in the distance learning system «Kherson Virtual University» (DLS KVU) [16].

In this DC one of the tasks of forming communicative competence is to create your blog by students and the organization of discussions in blog on the topic «Holidays in Ukraine», where students place the essay, link to video or audio materials in the subject, leave comments in blogs of classmates. Control and evaluation conducts with the use of the rating system of DLSKVU. Thus, there is the interaction between DLS and cloud service «blog».

Consider the use of Wiki-technology on formation of communicative competence in this course. For example, the traditional teaching of the topic entitled «Regional Variations in the USA» are reading the text, consisting of some fragments with titles and students should match titles of fragments with of parts of the sentences of text. In the distance course this exercise is implemented as follows: the text for reading is developed as course's document and all geographical names in it have link to the appropriate page on Wikipedia for a detailed review, study and use in the future. On the next stage, students complete the training task of "Comparison", for strengthening the acquiring knowledge. Thus, there is the interaction EER (document) in distance learning system and cloud service Wikipedia.

It should be noted the growing popularity of using Google Drive service in the learning process. Today Google Drive services are actively used by many teachers and trainers in different disciplines in their professional activities. These services are used as auxiliary tools for forming communicative competence in English. First of all, Google Drive – a free online office, which includes text, spreadsheet, service to create presentations and Internet service cloud storage files. This web-oriented software is a program that works by using a web browser without installation on the user's computer. Docs created by the user are stored on a special server Google, or can be exported to a file. This is one of the key benefits of cloud services, as access to the data entered can be done from any computer connected to the Internet. Let's consider the interaction of distance learning system and SaaS services on the example of Google Docs. Thus, in the process of learning in distance group in DLS tutor has the ability to open access to files for user groups and assign it the appropriate permissions. Users have the ability in Google Docs, depending on their rights, create, edit, share resources, using calendar built into the system to plan tasks etc. For example, in the DC for forming communicative competence of students we use a variety of exercises using text documents (co-create and edit documents on specific topics), spreadsheets (co-creation and editing crossword puzzles, tables, etc.), presentation (co-creating presentations in a particular topic and its further use) service Google Drive. For example, the traditional teaching practice for the topic entitled «Grand Canyon» is lis-

tening to the audio recording (2 times) and filling the blanks in sentences. This exercise aims to develop the ability of listening and understanding foreign speech. In the distance course this exercise is implemented as follows: audio recording is developed as course's document and there is the link on the document in Google Docs made by the teacher (tutor). After listening to the audio recording, the students begin to work with the Google document, fill gaps in sentences, edit and analyze the mistakes. The teacher observes the work of students and makes the comments. This document is saved on Google Drive. Control and evaluation conducts with the use of the rating system of DLS KVU. Thus, there is the interaction between DLS and cloud service Google Docs.

The use of social networks (VKontakte, Facebook) in formation of communicative competence in English has important role. During the learning process in the DC it has been created the group in the social network VKontakte. Organizational information and a large number of links to online resources for information and study are placed in it. Control and evaluation conducts with the use of the rating system of DLS KVU. For example, there is the task for is watching a video on the topic «Holidays in Ukraine» in the group VKontakte, and there is discussion in "Forum" in DLS. Thus, there is the interaction between DLS and social network VKontakte.

4 Model of Interaction of Cloud Services in Education

LMS as part PaaS meets the basic requirements of providing distance learning. At creating and using the distance course of LMS there is provided an opportunity to use internal services such as Whiteboard, Forum, Chat, Virtual Lab, E-mail and more. But there are methodological problems which cannot be solved by standard LMS means. Then LMS as an element of PaaS may use other cloud services to expand the technological means of solving the methodological problems. First of all, it concerns SaaS means, such as file storage Google Docs, OneDrive, media resources YouTube, communication Skype, publications Blogger, social networks Facebook, VKontakte and others.

The model of interaction of distance learning with SaaS cloud services in the English language learning is presented in Fig. 1.

On the basis of the services we specify educational opportunities of cloud technologies confirming the feasibility of their using in learning English:

- simplicity and convenience of teamwork of teacher and students;
- rapid inclusion of developed products in the educational process because of the lack of territorial binding service user to the place;
- organizing interactive sessions and collective training;
- creating of web-oriented laboratories in specific subject areas (mechanisms to add new resources, interactive access to simulation tools, information resources, support for users, etc.);
- access to documents anywhere and anytime;
- organization of various forms of control;
- moving into the cloud learning management systems (e.g. LMS Moodle and others.);

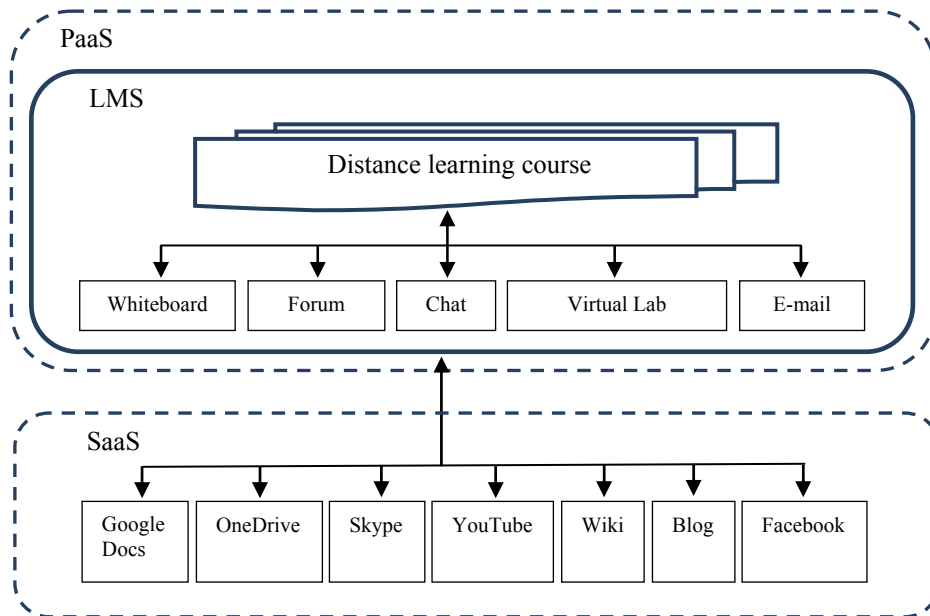


Fig. 1. The model of interaction between LMS and SaaS cloud services

- opportunities for researchers to access, development and dissemination of applied models.

5 Experimental Study

The main objectives of the experimental study are determining the state of use of SaaS cloud services by the teachers and students of Kherson State University (KSU). The method of questioning was used to exposure the attitude of tutors and students to use SaaS cloud services in a blended learning in LMS «Kherson State University». Among the tutors of DLS KVU the questioning was conducted on the study of the level of use of cloud services in the learning process. The purpose of the questioning is to make the analysis of level and quality use of cloud services in education using distance learning technologies.

Questionnaire consists of questions that reflect:

- degree of use of cloud services in a professional activity of the teacher;
- willingness of the teacher to learn new software;
- awareness of teachers about cloud technologies in educational process.

In accordance with the objectives of questioning the poll is designed for teachers of the university, which is located in the Internet using Google Form. Particular attention is paid to the use of cloud technologies in professional work of the teacher.

The list of questions of the poll, answers and results are presented in Table 1 (for

teachers - "T"), and (for students - "S").

Table 1. Questions of polls of teachers and students on the use of SaaS

#	Question	Answers	Quantity	
			T	S
1	Are the cloud technologies in your educational institution?	* Yes	46	204
		* No	19	10
		* Don't know	15	6
2	Do you use cloud services in a professional / educational activity?	* use in the classroom	15	45
		* use in distance learning	4	22
		* use in outside classroom (self-study)	10	47
		* use for storing, sharing information and in personal goals	27	68
		* don't use	34	18
3	What type of services you mostly use in own professional / educational activity?	* SaaS	7	183
		* PaaS	38	214
		* IaaS	1	17
		* Desktop as a Service	0	9
4	Which cloud services you use in the professional / educational activity?	* Internet services to create presentations (Prezi.com, SlideShare.net etc.)	25	154
		* Internet services to create interactive educational applications (LearningApps.org etc.)	21	141
		* Online encyclopedia (Wikipedia)	58	220
		* Common storage system (Google Drive, etc.)	9	178
		* Google services to work together	5	131
		* Internet services for creating flowcharts and diagrams (draw.io, gliffy.com etc.)	2	115
		* Other	1	20
5	Specify Google services that you use in the professional / educational activity?	* Google Disk	12	71
		* Google Docs	14	60
		* Google Calendar	5	15
		* Google Translator	52	175
		* Google Maps	45	205
		* Google Sites	2	6
		* Blogger	19	42
		* Other	0	33
6	Rate a five-point scale the level of use of cloud services in a professional / educational activity	1	7	8
		2	43	30
		3	15	102
		4	12	63
		5	3	17
7	Indicate your willingness of use of new cloud services in a professional activity	* Ready, regularly master new services	6	78
		* Ready, periodically have to master new programs and resources	29	82
		* Ready, but not enough time to master the new cloud services	25	41
		* Not ready	17	8
			3	11
8	What is your attitude to use of cloud services in a professional / educational activity?	* Positive	59	205
		* Negative	6	4
		* Neutral	15	11

80 from 100 teachers and 220 from 500 students were questioned of the Faculty of Preschool and Primary education and Faculty of Physics, Mathematics and Computer Science. Volume samples provide the margin of error of 5% and 95% level of confidence.

Analysis of the poll shows that cloud services are gradually being introduced in the educational process of KSU, but its use is at a low level. In professional activity the teachers often use cloud services Google, and they also actively use services to create online presentations and online training applications (Fig. 2). At the same time, the willingness of the teacher to learn new cloud services is high, which suggests the feasibility of training teachers in the use of cloud services.

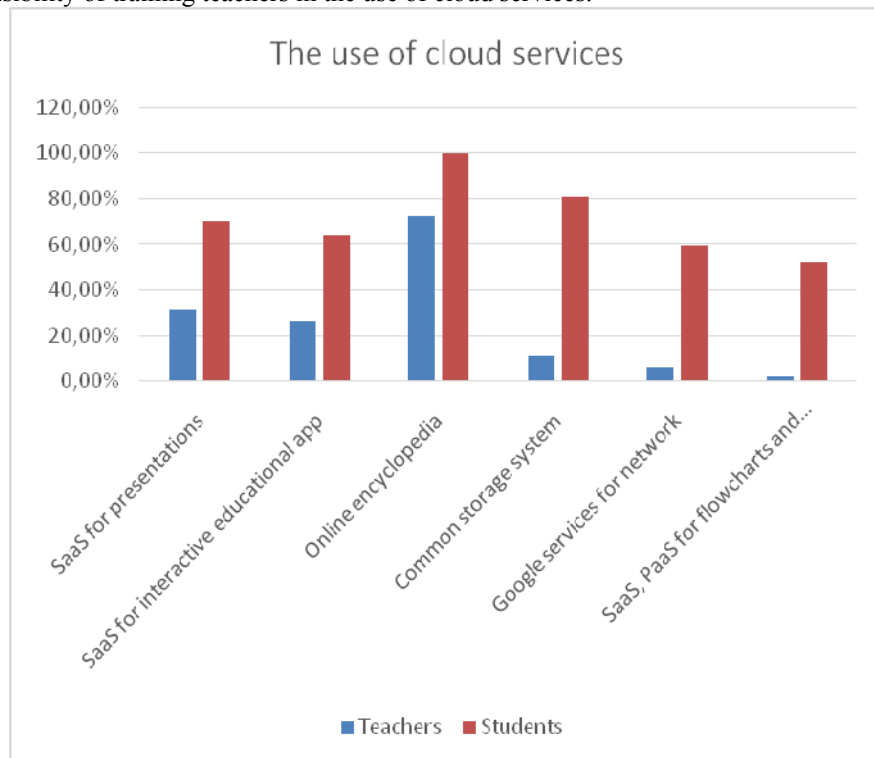


Fig. 2. The use of cloud services in the professional / educational activity

It should be noted that more than half of the students widely used cloud services in independent work in blended learning in LMS, if the teachers use them. The attitude of students to the use of cloud services is positive and the readiness of use them is high enough. Therefore, there is a need of students in increasing the use of cloud services in distance learning.

Thus, the results of experimental study have shown the low levels of use of cloud technologies in distance learning is a consequence of a lack of awareness of teachers in the possibilities of their use. Therefore, the actual work is aimed at popularizing the use of cloud technologies in distance education. It is reasonable to conduct training of university teachers on the use of cloud services, which is part of the quality manage-

ment system of EER [17].

6 Conclusions and Outlook

The peculiarities of cloud services in the process of English communicative competence are identified and examined. The model of the interaction of distance learning system with cloud services, the use of which will improve the quality of the learning process is designed.

1. According to the designed model of interaction LMS with the SaaS resources the technologies of cloud services in distance learning are studied.

2. Methods of using cloud services are considered on the example of DC "Practical English Course Upper Intermediate". They describe the methods of doing tasks aimed on forming communicative English competence of students of language faculties.

3. The results of experimental study have shown the low level of use of cloud technologies in distance learning is a consequence of a lack of awareness of teachers in the possibilities of their use. Therefore, the actual work is aimed at popularizing the use of cloud technologies in distance education.

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