

Educational potential of social networks as a component of information and educational environment

Potencial educativo de las redes sociales como componente de información y entorno educativo.

Raisat Magomedovna ABDULAEVA [1](#); Satsita Adamovna ALIYEVA [2](#); Zaliha Idrissova IDRISSOVA [3](#); Zaur Rabadanovich RABADANOV [4](#); Madina Shovgatdinovna GEREEVA [5](#)

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ABSTRACT:

The article deals with the peculiarities of the modern information educational environment, which is formed in the course of informatization of society, highlights its pedagogical specificity, and analyzes the didactic potential of ICT-oriented environment as a basis and an integral element of modern system of higher education. The authors analyze educational potential of social networks as a component of information and educational environment, consider different approaches to the use of social networks in the training of future teachers, and give the characteristic of didactic capabilities of using social networks in the course of lectures and practical classes. The article presents and analyzes the results of experimental research concerning the use of social networks in the educational process of future teachers. The conclusion is made that the popularity of social networks among student-age youth provides an opportunity to acquire new forms of implementation and methods of their application in the course of training.

Keywords: education, educational process, information environment, information educational

RESUMEN:

El artículo trata sobre las peculiaridades del entorno educativo moderno de la información, que se forma en el curso de la informatización de la sociedad, destaca su especificidad pedagógica y analiza el potencial didáctico del entorno orientado a las TIC como base y elemento integral del sistema moderno de educación más alta. Los autores analizan el potencial educativo de las redes sociales como un componente de la información y el entorno educativo, consideran diferentes enfoques del uso de las redes sociales en la formación de futuros docentes y dan la característica de las capacidades didácticas de utilizar las redes sociales en el curso de conferencias y Clases prácticas. El artículo presenta y analiza los resultados de la investigación experimental sobre el uso de las redes sociales en el proceso educativo de los futuros docentes. Se llega a la conclusión de que la popularidad de las redes sociales entre los jóvenes en edad de estudiar brinda la oportunidad de adquirir nuevas formas de implementación y métodos de aplicación en el curso de la capacitación.

Palabras clave: educación, proceso educativo,

1. Introduction

In the context of the development of information society, the current state of education requires a new methodological level of teaching at universities, which would contribute to the better training of highly qualified, competent and competitive teacher, who should combine professional knowledge and organizational skills, skillfully use various methods of learning and teaching, be ICT-literate, and able to solve complicated problems of the educational process. The professional level and competence of the teacher have direct impact on the quality of educational achievements. The above requirements for the future teacher need enhancing the cognitive activity of students through the use of modern information technologies (Bikbulatova et al. 2016).

Taking into account the strategy of the educational process modernization, it is necessary to consider the social order of contemporary society, the requirements of the labor market, the goals of educational activities, the needs of modern students and their individual psychological characteristics. Therefore, during the classes it is important to combine different teaching methods and activate the learning process in different ways. These teaching methods should be active (where the teacher plays the role of a mentor in educational activity and uses active teaching methods, such as problem-based learning, programmable learning, student-centered approach (Kuteeva V.P., Rabadanova R.S., 2010), research-based training, etc.), as well as they should be purposeful (selection of training content, methods, forms and means of training, and diagnostic evaluation of results of students' educational activity). (Kuteeva et al. 2012, Rabadanova 2010).

According to T.S. Panina (Panina and Vavilova 2006), activation of the learning process is defined as improvement of methods and organizational forms of educational and cognitive work, providing active and independent theoretical and practical activity of students at all levels of the educational process. This is provided by the creation of a highly effective information educational environment (IEE) of the higher educational institution, i.e. systemically organized set of information transmission means, the principles of interaction of the educational process participants, didactic, organizational, and methodological support, focused on meeting the needs of students.

Andreev A.A. and Yu.B. Rubin define IEE as a pedagogical system with its support subsystems (economic and financial, logistical, regulatory, marketing, and management) (Andreev and Rubin 2002), namely they consider the managerial component of this environment.

Marchenko E.K. considers IEE as a systemic totality of educational institutions and governing bodies, local and global information networks, library funds, as well as means of data transmission, information resources, hardware-software and organizational-methodical support, implementing educational activities (Marchenko 1998), i.e. considers the technical component of this environment.

Ilchenko O.A. characterizes the IEE as an organized set of information, technical, educational, and methodological support, which is inextricably linked with a human as a subject of educational process (Il'chenko 2002), that is, emphasizes the connection of the system with the personality development.

Rabadanova R.S. defines information and educational environment of advanced training as artificially created socio-cultural environment of students' vocational training, which is based on the activities of the teacher at an increased level of complexity. The IEE should include various types of means and the contents of education providing the zone of the nearest development of the student capable of productive activity in forecasting of the theory and practice of dynamically changing modern production (Rabadanova 2009, 2010, 2011).

All four definitions have a common feature: the IEE is presented as a system property with the following diversification:

- information aspect (satisfaction of information and educational needs of the educational process participants);
- educational aspect (timely and high-quality provision of educational content);
- controlling aspect (control of students' independent work);
- predictive aspect (looking-ahead) (Rabadanova 2010, 2011);
- organizational aspect (relationship with lecturers).

The development of IEE provides for the implementation of innovative forms of training. The spectrum of information technologies' application in education is very wide. Some of the technologies can provide the educational process; these are lectures and practical studies, other technologies are aimed at developing new textbooks and teaching aids, the creation of an information and reference database, and provide remote access to educational resources.

The use of IEE makes it possible to change the way of delivering educational content presented during lectures through specially designed multimedia resources. At the same time, the quality of mastering the theoretical material is achieved by working with computer training programs and using telecommunications in the educational process.

In this article the IEE is considered on the basis of the information approach reflecting frame of reference, which defines development of youth in adequate conditions of information reality. From such standpoint, the IEE is an aggregate of conditions that provide activity and information interaction between distributed information resources and remote users on the basis of modern interactive ICT tools aimed at the formation of a highly educated and spiritually developed personality capable of socialization in modern conditions.

The IEE influences directly or indirectly the processes of personality formation in modern conditions. Consequently, it performs informative and communicative functions, as well as contributes to the implementation of activities related to the use of computer and means of new information technologies.

Today, it is recognized that the integration of the domestic higher education system into the world educational space is impossible without the intense development of the IEE of each particular higher education institution. We believe that social networks can become important component of the information and communication technologies.

The aim of the present study is substantiating the mainstream in the use of social networks in the course of training future teachers and determining their role in enhancing students' learning activities.

The research hypothesis is based on the assumption that using social networks in the course of training future teachers will improve the efficiency and effectiveness of the educational process.

2. Methods

The following methods were used in the course of the research:

- analysis of scientific-pedagogical and methodological literature concerning the nature of activation of the future teachers' training process (T.S. Panina, L.N. Vavilov); online resources' analysis (GoogleApps, "Vkontakte", "Facebook", "Live Journal", "Skype"); as well as Moodle open-source learning management system;
- studying and generalizing pedagogical experience on improvement of future teachers' training process in the framework of professional training system (S. M. Avdeeva, N.V. Nikulicheva, S.S. Khapaeva, O.I. Zaichkina), as well as the organization of the pedagogical process using ICT at higher education institution (A.V. Bogdanova, D.A. Dmitriev) including social networks (O.L. Dovgy, L.G. Bekhtereva, N.Yu. Margolis and V.A. Nikitenko);
- questionnaire survey of students-philologists of the Republic of Dagestan (188 people) to determine the usage status of social networks in the learning process;
- pedagogical experiment, which involved the application of the social network "Vkontakte" in the educational process.

For this purpose, an independent group was created whose learning process was supplemented by the materials of the lectures and laboratory classes. Besides, thematic discussions on certain topics were conducted, where students together with the lecturers shared ideas and clarified some aspects of the problem, put forward the idea of modernization of the training process, etc. Future teachers-philologists of pedagogical higher education institutions of the Republic of Dagestan in the number of 130 students (86 females and 44 males) were involved in a pedagogical experiment.

- Research results were processed using mathematical processing methods namely Student's t-test.

3. Results

During the training sessions, in order to combine modern psychology and pedagogical technologies as well as information and communication technologies (ICT), students were given in advance the access to the educational-methodical complex on each individual topic (video, photo materials, documents, and other learning materials). Students studied this information, and then during the classes participated in discussion of problematic issues and clarification of unclear (ambiguous) material.

As part of this work, students used also GoogleApps services. Students cooperated, jointly performed tasks, conducted research activities (when performing individual educational and research tasks, students were involved in a joint discussion of the works of their peers, added comments and criticism; planned joint group activities; created questionnaires and conducted social surveys, and learned to analyze the obtained results). All this developed the sense of team-working and mutual support (collaboration) in students.

Here is an example of statistical analysis of the results of the experiment conducted in the course of teaching a particular subject. Students of the control group (CG involving 64 testees) were given material presented in the Moodle for independent consideration of the topic. In addition to the material presented in the Moodle system, the educational process of the students of the experimental group (EG, 66 students) was supported by using the social network "Vkontakte".

According to the results of the final testing of the students in the control and experimental groups when working on the outlined topic, data were obtained, which after checking the statistical hypothesis using the Student's t-criterion, had shown the following result: $t_{exp} = 5.11$ ($t_{crit} = 2.66$; $p < 0.01$). This means that we can talk about different levels of solution of test cases by students in the control and experimental groups. At the same time, the level of mastering the material by students who used the social network "VKontakte" had the highest result.

As part of the study, a sociological survey was also conducted among philological students in order to investigate whether the students had constant access to the Internet, where they used it, and what devices they used.

The results of the sociological survey are presented in the Table 1.

Table 1
The results of the sociological survey

Question	Answer
Do you have permanent access to the Internet?	Yes - 94% No - 6%
What device do you use when accessing the Internet?	Smartphone - 52% Laptop - 41%
What social networks do	VKontakte - 46%

you visit?	Facebook - 24% Instagram - 14% Twitter - 9%
For what purpose do you use social networks?	<ul style="list-style-type: none"> • to communicate, listen to music and watch movies - 50%; • for self-actualization, participation in social projects and job search - 8%; • for training - 11%

Students adhere to the opinion that social networks are very useful for rapid access to learning materials, communicating with the lecturer and the fulfilling collective homework, conducting classes in the remote mode and self-filling of educational content. According to the students, to do this, more suitable networks are "Vkontakte", "Facebook", blog platform "LiveJournal", and the "Skype".

4. Discussion

In the further discussion of the results, it should be noted in advance that the high-quality higher education is one of the most important guarantees of the citizens' realization of their intellectual potential, the decisive factor of economic stability, and one of the indicators of the teaching level at general and higher education institutions. The student, upon graduation from the university, should be a highly qualified specialist, competent not only in his professional activities, but also in related fields of knowledge. In the conditions of creation of an information society this knowledge involves also lecturer's ICT competence, the components of which are reflected in the work of S.M. Avdeeva (Avdeeva et al. 2016). Here are some of them:

- possession of information navigation skills;
- basic knowledge of telecommunication etiquette;
- ability to use the range of services provided by the information environment;
- knowledge of the specifics of working with information resources (databases, information services);
- ability to actively use the communication capabilities of computer networks in order to – organize fruitful communication among the participants of the distance learning process;
- possession and use of network services in professional activities.

These components are becoming particularly relevant in the context of the ongoing process of informatization of the students' life at modern school (teacher should be able to communicate with children in the language of network services).

An important role in the development of such ICT competence components belongs to the activation of the learning process of future teachers, which is implemented through the informatization of the learning process, improving its forms and content, the introduction of computer-oriented methods of learning and knowledge control, as well as the use of modern means of creating educational content and online tools of open education.

Implementing individual and differentiated approaches, developing the student's creative personality through the use of multimedia technologies in the educational process, using application software, modeling tools, visual elements, formulating problem oriented tasks, reproducing production situations, drawing conclusions, presenting demonstration experiment, independently working with new literature, holding discussions during classes, as well as implementing interactive elements of research activities in the course of education contribute significantly to the enhancement of the educational process (Bogdanova and Dmitriev 2013). Also, it should be noted that the activation of students' learning should be aimed at revitalizing the cognitive process and increasing the motivation towards education, the ability to professionally and competently solve set problems, as well as forming a non-

standard style of thinking.

In terms of using information and communication technologies in education, the most important factors to enhance students' educational and cognitive activity include the following (Tongkaw 2013):

- developing motivation (increasing interest in learning), including methods of obtaining knowledge;
- developing thinking and intellectual abilities of students;
- providing individualization and differentiation of education;
- developing self-sufficiency;
- choosing active learning methods;
- increasing the level of visual expression;
- creating and placing high-quality electronic educational resources in free access.

Network tools of open education are defined as ICT tools that ensure the formation and maintenance of online electronic information resources of the open learning space, the implementation of technologies, and the design and application of open pedagogical systems. Today, the most topical tools include e-learning technologies, global social networks, scientific and educational information networks, interconnection supporting technologies using mobile Internet devices, etc.

The use of social networks can provide the educational process with great interactivity, positively affect the results of students' cognitive activity, become an effective means of increasing the motivation and quality of learning, building students' team-work, performing joint project activities, and individualizing the student's virtual learning space. Also, social networks can be used as a means of disseminating training content (Gökçe 2017).

In the context of the rapid development of ICT, new social services that appear on the Internet can become one of the tools that modify the learning process. Their functional combination can lead to the fact that the educational process participants will be able to quickly and conveniently operate training content not leaving home and spending minimum of effort and time. Existing social services can be grouped by common characteristics, namely services providing opportunities for saving photo and video files (Flickr, Flamber, FilkLab), services for working with documents (GoogleDocs, Dropbox, OneDrive), services providing the ability to coedit and change the semantic content (Blogger, Wiki), communication and entertainment services, i.e. social networks (Facebook, Twitter, Vkontakte, Odnoklassniki), and geoservices (GoogleMaps, GoogleEarth, Wikimapia).

Social networks have become an integral part of the life of every modern person, and in particular, a young audience – schoolchildren and students. According to the World Economic Forum (The world's most popular social networks, mapped, n. d.), the number of users registered in the "Facebook" global network is greater than 1.87 billion users. The "YouTube" Internet service has 1 billion accounts, while the Russian network "Vkontakte" has registered 90 million users.

According to O.L. Dovgy, social networks are attractive because they can be accessed from any device. They have simple user interface that young people are used to; networks integrate many additional services that can be used to create own learning content. All this saves time, bypassing the adaptation stage of students to the new communicative space, the multimedia nature of which facilitates the use of video and audio materials in the virtual study group (Dovgy 2014).

At the same time, there is an opinion that social networks distract from the educational process and cannot become an additional pedagogical tool, because they are traditionally a virtual venue for spending leisure time. However, it cannot be denied that introducing social networks into the educational process can effectively contribute to team-working, project activities, and self-education of students. Thus, L.G. Bekhtereva and coauthors in their work put forward a number of arguments in favor of the use of social networks in educational activities (Bekhtereva et al. 2015):

1. Social networks are popular among young people.
2. The use of social networks does not require cash expenditures. Social networks provide free use of the server for storing digital data.
3. Using social networks as a means of learning, students acquire skills stipulated by the challenges of the XXIst century, namely, mastering the means and ways of communication with other people, the ability to use data correctly and creatively to solve problems.
4. Working with interesting web resources becomes even more convenient. Using the social network, students and lecturers can share and discuss interesting findings in the Internet.
5. The implementation of social networks in the educational process will allow students who are absent in the classroom for one reason or another, to observe the educational work and take part in it through the Internet.
6. Social networks provide the possibility of constant interaction between students and lecturers through the network at a convenient time, which ensures the continuity of the educational process.
7. The use of social networks provides the lecturer the opportunity to conduct classroom lectures in an interactive mode. For example, if the lecture is held online in the "Twitter" social network, students in the course of listening to the lecture can ask questions and discuss the material presented in the microblog format.
8. The virtual group, created in the social network, is available for students wherever they are, provided the use of the mobile Internet.
9. Possibility of joint creation and improvement of educational content. Instead of simply consuming information, students become expert tutors in the environment of a virtual study group (creating messages, discussions, resources, and much more).
10. The social network allows the lecturer to better remember students (correlate names and faces in the audience) and understand their interests. Lecturers have the opportunity to learn more about the students' personalities, their individual characteristics, and offer them information, topics or tasks, which should be of students' particular interest.

Despite the number of advantages associated with the implementation of social networks in the educational process, it is advisable to note the problems that accompany their use. These are, in particular, the need for constant access to the network, compliance with the communication etiquette among the participants, the lack of opportunity to constantly monitor the use of social networks exactly for educational purposes, etc. In addition, the lecturer will not always be able to keep track of the correctness of training content that students upload.

Thus, organizing educational activities of the future teacher through the use of social networks can be used to solve the following problems:

- organizing students' team-work during classes and out of audience that promotes cooperation and acquisition of experience of working within the team;
- extending the opportunity to organize students' education at home, because social networks allow using training content without time, geographical, and age limits;
- ensuring the development of student's personalized learning environment, creating his portfolio and training content. If students together with the lecturer will create learning content, it will be adapted individually for each student;
- promoting self-study of students (implementation of the research-based learning principles);
- promoting individual learning since each student needs to work at his own pace;
- carrying out informal communication between the lecturer and the student;
- keeping the electronic journal;
- implementing the principles of continuous learning; at any time of the day students will be able to visit the page of a particular discipline, download the necessary training material, send the job done, learn online at no costs, and receive constant support from the lecturer;

5. Conclusion

Having analyzed the results of the survey and test of students' knowledge, we proved the initial hypothesis that using social networks in the learning process of future teachers would improve the efficiency of the educational process.

Thus, the use of social networks is a relevant and promising means when organizing educational activities of students and enhancing learning process. The implementation of social networks contributes to increasing the motivation for learning, individualization and differentiation of the educational process. Social networks are an additional means in organizing joint work of students and lecturers with training material. They allow holding webinars, keeping electronic records, participating in forums, and organizing joint discussions on relevant topics. Use of social networks on a regular basis in the educational process will contribute to the development of students' communicative competence.

Further research prospects will aim at creating a methodology for the use of social networks in the course of training of future teachers, which involves the development of methodological recommendations for the use of the social network resources in the course of their training.

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1. GBOU DPO "The Dagestan Institute of Education Development", Makhachkala, St. General A. Magomedtagirov, 159, 367027, Russia. E-mail: odipkpk@mail.ru

2. Federal State Educational Budget Establishment Institution of Higher Education "Chechen State Pedagogical University", Kievskaya St., 33, Grozny, Chechen Republic, 364031, Russia

3. Federal State Educational Budget Establishment Institution of Higher Education "Chechen State Pedagogical University", Kievskaya St., 33, Grozny, Chechen Republic, 364031, Russia.

4. Federal State Budget Educational Institution of Higher Education "K.G. Razumovskiy Moscow State University of Technologies and Management (the First Cossack University)", 73, Zemlyanoy Val, Moscow, 109004, Russia. E-mail: cafedramgutu@mail.ru

5. Moscow City University, 2nd Sel'skohozyajstvennyj proezd, 4, korp.1, Moscow, 129226, Russia. E-mail: madina.gereeva87@yandex.ru

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