The Role of Social Networks in the Educational Process

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Anna Berestova (✉)
I.M. Sechenov First Moscow State Medical University (Sechenov University), Moscow, Russian Federation
berestanna@yandex.ru

Turkan Alizade
Azerbaijan State Pedagogical University, Baku, Azerbaijan

Zaure Umirzakova
University of International Business, Almaty, Kazakhstan

Abstract—The purpose of the research is a comparative study of the use of social networks in the educational and sociocultural context. The comparison criteria include the following indicators: social status (student-teacher), demographic characteristics (gender and age), and sociocultural indicators (the country of residence – Russia, Kazakhstan and Azerbaijan). A questionnaire based on closed and open questions was used to collect data. The data were analyzed in SPSS. Various strategies (constructively individualistic and value-normative strategies) were identified for obtaining and using information through social networks that are mediated by existing cultural and social practices. There is a qualitative difference in the use of social networks by teachers and students. Students are primarily attracted by the ability to communicate on social networks. The use of social networks by teachers is mediated by their professional activities. The results obtained allow us to build other forms of interaction between the teacher and students. A teacher coordinates students’ independent intellectual activities rather than transmits knowledge; students become not just consumers of educational information, but active participants in the creation of an intellectual product.

Keywords—Social network, university, learning, education, communication, student, teacher

1 Introduction

Global informatization of society and the active introduction of information and communication technologies in the educational process leads to the educational paradigm change, the transition to the learning process individualization and education modernization, which is a key condition for the training of highly qualified personnel capable of working in new and increasingly complex digital environments [1]. The latest educational technologies, which are closely related to the possibility of building
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Individual learning strategies, include social networks. It is social networks that can act as a condition and platform for the constant knowledge update in the context of continuous interaction with the educational process subjects.

Social networks begin to attract the attention of researchers due to their universal nature, accessibility and diversity, which are important conditions for building effective educational strategies. A social network is a community of people connected by common interests and activities or having other reasons for communicating with each other, designed to build social relationships. The term was introduced by a sociologist from the Manchester School, James Barnes, in 1954, long before the advent of the Internet [2]. Over the past decade, social networks and their applications have penetrated our daily lives and become one of the most important means of communication and entertainment [3, 4]. There are many contradictory and polar assessments of the influence of social networks on the educational process. The educational community is concerned that social networks are decreasing students' interest in education; this is a problem that not only affects their academic performance, but also leads to more serious consequences, for example, exclusion [5]. However, Azerbaijani researchers have shown that there is a strong correlation between the use of social networks to establish deeper relationships and the quality of university studies [6]. At the same time, the social or ethnic origin of students, as well as gender differences had a low correlation with academic performance. Some hard-hitting authors even believe that social networks do not contribute to the intellectual environment formation due to their clear tendency to assessment uniformity; thereby, social networks hinder critical discourse, in particular, due to the self-segregation of virtual social groups when people with similar views form comfortable space for communication rejecting any inappropriate information [7]. Thus, ensuring the effective work of teachers and students puts forward the task to assess the feasibility of using the resources of popular social networks in the educational process.

The active study of social networks in the context of their impact on the educational process takes place due to the fact that they are a convenient and promising resource for increasing the educational competencies of students [8]. On the other hand, their use generates many other problems that are of instrumental, technical, and sociocultural nature. The purpose of the research is a comparative study of the use of social networks in the educational and sociocultural context. The comparison criteria include the following indicators: social status (student-teacher), demographic characteristics (gender and age), and sociocultural indicators (the country of residence - Russia and Kazakhstan). Thus, the research objectives are as follows: (a) to study the influence of socio-demographic characteristics of respondents on the use of social networks; (b) to study the strategies for using social networks by teachers and students; (c) to study the use of social networks in the context of sociocultural characteristics.

2 Literature Review

One of the most significant characteristics of social networks is their ability to provide user interaction. A number of studies show that social networks can become a
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valuable resource for information exchange and cooperation [9]. In rapidly developing countries such as Azerbaijan, the development of social networks is closely linked to the accelerated penetration of digital economy elements. Therefore, their importance as a tool for education, business and social communication is especially great [10]. The study of the interaction between the teacher and students in the process of implementing learning goals is of particular interest. An educational platform based on Facebook resources and allowing the teacher to provide information and instructions to the students was presented in one of the projects. The students, in turn, used the information received not only for the independent study of a certain discipline, but also for the formation of temporary creative teams, which resulted in the creation of a certain intellectual product [11, 12].

Currently, the attitude to social networks is being changed - negative and critical assessments are replaced by more balanced ones. In this regard, there are large-scale studies demonstrating internal problems and contradictions associated with the use of social networks. This is evidenced, in particular, by an extensive (n = 6139) Italian study of the professional attitudes of university teachers, which showed that the use of social networks in the educational process is limited by a number of reasons, including cultural resistance, lack of pedagogical skills, problems related to confidentiality, and institutional constraints [7]. Another large-scale study evaluating the opinions of teachers on the impact of social networks on the educational process presented similar results. According to the respondents, the active use of social networks by students decreases the assimilation of professional knowledge: on the one hand, social networks distract students’ attention, and on the other, reduce the authority of the teacher due to the fact that students, being more proficient in everything related to virtual interactions and social networks, begin to use them as an additional source of knowledge. On the other hand, teachers are not willing to increase their own competence in using social networks due to lack of time [13].

Despite a rather critical assessment of the role of social networks in formal education, recent works note an increase in their positive impact [14]. However, an important update should be given on the issue: the influence becomes effective when an educational institution provides institutional and technical support by suggesting specially designed mechanisms for the implementation of these networks in the educational process [15].

Thus, it can be concluded that the introduction of social networks in the institutionalized processes of formal learning is quite slow, and teachers, as the representatives of formalized structures, can also use social networks in the educational process with great difficulty. The main reason for this is not only their subjective unwillingness or individualized lack of necessary skills, but in the lack of formalized and technically mediated mechanisms for using the potential of social networks in the educational process. That is why students, being more dynamic subjects of the educational process, are much more likely to use social networks at all levels of the educational process (communicative, informational, procedural and research). Students often use social networks to create tools to personalize learning and improve its quality [16]. These tools include mutual search for information, posting additional educational materials on the network, and the mutual exchange of experience related educational
and practical assignments. According to the studies, students use social networks mainly for socialization, exchange of opinions or ideas, that is, for informal learning, the study and acquisition of attitudes, values, knowledge and skills based on their direct daily experience and social environment [17].

The learning process efficiency is largely determined not only by the individual efforts of the educational process subjects, but also by the educational environment. Educational environment is a communication space that operates with information related to the educational process (instrumental function); it also has certain values associated with the acquisition of knowledge (motivational components). From this perspective, social networks can contribute to the formation of additional educational experience [18], provide resources that help students quickly adapt to the learning environment [19, 20] and find interest groups within their university, give them an opportunity to exchange learning experiences with students from other universities, including the foreign ones [11].

Adaptation to university conditions and the learning process is a complex and multidimensional process that consists of many components, including direct adaptation to changing learning conditions, which is an important, but not the only condition for effective training [21]. As it has already been mentioned, there are conflicting points of view on the impact of social networks directly on the educational process; the majority of researchers come to the conclusion that social networks certainly have a positive effect on informal communication: they contribute to multimedia and intercultural communication [11], as well as encourage collaboration and interaction at universities [22]. The advantages of social networks in this context are the increase in educational motivation, as well as the use of co-educational methods initiated by students [12]. The support that students receive by interacting through social networks helps them feel more connected with the institution; in addition, social connections increase the likelihood of continuing education and expand the opportunities for informal participation in institutional and social activities both inside and outside the institution [23].

Another aspect of learning based on social networks is the support of learning management systems, which can be implemented at several levels. Support can be provided through certain individual contacts aimed at enhancing emotional stability and various kinds of assistance (consulting, informational, etc.) [2]. In addition, support can be formalized; it can create dynamic educational systems, the individual elements of which are the student and the teacher [24].

3 Methods and Materials

The study involved students and teachers from the four universities of three countries: Saratov State Socio-Economic University (Russia), the University of International Business (Kazakhstan), A. Baitursynov Kostanay State University (Kazakhstan) and Azerbaijan State Pedagogical University (Azerbaijan). The study was conducted from May to October 2019. A total of 440 students (110 students from each university) and 288 teachers (72 teachers from each university) were surveyed. The respond-
ents were selected based on the simple random sampling method. If the student or teacher who received the offer agreed, they became participants in the study. Upon reaching the required sample size, the distribution of proposals to possible study participants ceased. Randomly selected students and teachers from the list of students and employees at the university were invited to participate in the study. The study was conducted on the principles of complete confidentiality using a specially created participant identifier and a specially created email account, with which the participant who expressed his consent to participate in the study sent answers to the questionnaire. Since researchers were not aware of the relationship between identifiers and email addresses, the study guarantees both the participation of real teachers and students, as well as the confidentiality of their answers and personal data.

A questionnaire based on closed and open questions was used to collect data. Closed questions assumed the choice of an answer from predefined options, for example, the amount of time spent in networking: 1. Less than 1 hour; 2. 1 - 3 hours; 3. more than 3 hours. Open-ended questions suggested an answer formulated by the participant himself, for example, Motives for using social networks or the preferred social network. Answers to open questions were collected and summarized without changes by a group of 22 experts and all four universities, which were supposed to agree on the final wording of each of the points Motives for using social networks designated by the participants. All tables shows the data as a percentage for a certain part of the respondents. Tables 3 and 4 suggest that participants can indicate any number of responses. The data in tables 3 and 4 show what percentage in this group of participants indicated this answer. In addition, a correlation analysis of groups of data presented in the tables was carried out by using the SPSS software.

Demographic information on the groups is presented in Table 1.

<table>
<thead>
<tr>
<th>Table 1. Demographic data of the participants</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Russia</strong></td>
</tr>
<tr>
<td><strong>Students</strong></td>
</tr>
<tr>
<td>Gender</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

*The University of International Business (Kazakhstan)  
**A. Baitursynov Kostanay State University (Kazakhstan)

** Results **

The open question about the social networks used by students revealed that Instagram is the most popular (93%), followed by VK and Facebook used by 89% and 34% of respondents, respectively. The most popular social networks used by teachers are Facebook (66%), VK (54%) and Instagram (33%). In Kazakhstan, there were similar results; VK (students - 91%, teachers - 61%), Instagram (students - 83%, teachers - 44%), Facebook (students - 28%, teachers - 49%). In Azerbaijan, the fol-
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Following indicators were obtained: Instagram (students – 87%, teachers – 43%), VK (students - 88%, teachers - 51%), Facebook (students - 67%, teachers - 57%).

The time spent on social media (Table 2, part 1 and 2) shows that the difference is based on the age of the audience (students and teachers): students are more likely to use social networks for a longer time (more than 3 hours a day) while most teachers spend their 1-3 hours a day. These differences were also manifested in the gender aspect: almost twice as many male teachers from Russia spent 3 or more hours a day on social networks (Russia - 40% and Kazakhstan - 23%). However, almost twice as many female teachers from Kazakhstan spent less than 1 hour a day on social media (Russia - 38% and Kazakhstan - 18%).

Table 2. The use of social networks (part 1)

<table>
<thead>
<tr>
<th>Russia</th>
<th>Azerbaijan</th>
<th>Students</th>
<th>Teachers</th>
<th>Students</th>
<th>Teachers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>Female</td>
<td>Male</td>
<td>Female</td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>Less than 1 hour</td>
<td>6</td>
<td>11</td>
<td>12</td>
<td>18</td>
<td>7</td>
</tr>
<tr>
<td>1-3 hours</td>
<td>38</td>
<td>42</td>
<td>45</td>
<td>55</td>
<td>48</td>
</tr>
<tr>
<td>More than 3 hours</td>
<td>56</td>
<td>47</td>
<td>40</td>
<td>27</td>
<td>48</td>
</tr>
</tbody>
</table>

Table 3 and Table 4 show the motives for using social networks by teachers and students from Russia, Kazakhstan and Azerbaijan (the combined total for each column is higher than 100 percent as the respondents could choose any number of suitable answers). The tables graphically demonstrate significant differences in the use of social networks by students and teachers. Students use social media primarily for communication, expanding and maintaining contacts while teachers closely incorporate their use in the teaching process. There was no difference between the groups of students and teachers in terms of using social networks for self-development.
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Table 3. Motives for using social networks (Russia and Kazakhstan (UIB))

<table>
<thead>
<tr>
<th></th>
<th>Russia</th>
<th>Kazakhstan (UIB)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Students</td>
<td>Teachers</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>Communication with friends</td>
<td>77</td>
<td>84</td>
</tr>
<tr>
<td>Finding new contacts</td>
<td>68</td>
<td>70</td>
</tr>
<tr>
<td>Sharing daily life with other people</td>
<td>53</td>
<td>88</td>
</tr>
<tr>
<td>Hobby and self-development</td>
<td>65</td>
<td>66</td>
</tr>
<tr>
<td>Communication with fellow students (colleagues)</td>
<td>32</td>
<td>53</td>
</tr>
<tr>
<td>Information for social activity</td>
<td>32</td>
<td>38</td>
</tr>
<tr>
<td>Search for information, including information related to work or studies</td>
<td>26</td>
<td>38</td>
</tr>
<tr>
<td>Quick receiving (transmitting) of the information about the educational process</td>
<td>22</td>
<td>65</td>
</tr>
<tr>
<td>Contacting teachers (students)</td>
<td>33</td>
<td>40</td>
</tr>
</tbody>
</table>

Table 4. Motives for using social networks (Azerbaijan, Kazakhstan (AB))

<table>
<thead>
<tr>
<th></th>
<th>Azerbaijan</th>
<th>Kazakhstan (AB)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Students</td>
<td>Teachers</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>Communication with friends</td>
<td>70</td>
<td>81</td>
</tr>
<tr>
<td>Finding new contacts</td>
<td>63</td>
<td>67</td>
</tr>
<tr>
<td>Sharing daily life with other people</td>
<td>48</td>
<td>50</td>
</tr>
<tr>
<td>Hobby and self-development</td>
<td>69</td>
<td>68</td>
</tr>
<tr>
<td>Communication with fellow students (colleagues)</td>
<td>32</td>
<td>23</td>
</tr>
<tr>
<td>Information for social activity</td>
<td>32</td>
<td>25</td>
</tr>
<tr>
<td>Search for information, including information related to work or studies</td>
<td>31</td>
<td>37</td>
</tr>
<tr>
<td>Quick receiving (transmitting) of the information about the educational process</td>
<td>23</td>
<td>51</td>
</tr>
<tr>
<td>Contacting teachers (students)</td>
<td>30</td>
<td>45</td>
</tr>
</tbody>
</table>

In addition to the calculation of percentage distribution for each answer, we carried out a correlation analysis of the general information received, as well as the data from individual study groups. The motives for using social networks and some socio-demographic characteristics (gender, country of residence, social status) were analyzed. The following indicators “Communication with friends” ($\rho = 0.614$), “Finding new contacts” ($\rho = 0.516$), “Information for social activity” ($\rho = 0.514$) correlated with the social position of the “student”. In addition, there were certain gender differences: female students demonstrated a significant correlation between their social position and the “Sharing daily life with others” ($\rho = 0.664$) and “Contacting teachers” indicators ($\rho = 0.525$). The following indicators “Hobby and self-development” ($\rho = 0.518$), “Search for information, including information related to work/studies” ($\rho = 0.708$) and “Contacting students” ($\rho = 0.835$) correlated with the social position of the “teacher”. There were certain differences in the correlation between the re-
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In particular, Russian students noted a significant correlation between “Finding new contacts” and “Sharing daily life with other people” (ρ = 0.722) compared to the students from Kazakhstan and Azerbaijan (ρ = 0.318; ρ = 0.311). The statement “Hobby and self-development” was significant in the group of female teachers from Russia (ρ = 0.654) and insignificant in the group of female teachers from Kazakhstan and Azerbaijan (ρ = 0.231; ρ = 0.221). The statement “Communication with classmates (colleagues)” significantly correlated with the social position of female students (ρ = 0.759) and female teachers (ρ = 0.601) from Russia, but there were no significant correlations in the groups of the respondents from Kazakhstan and Azerbaijan.

At the next stage, the correlation relationships were analyzed separately and the relationships that characterized a particular group were identified. In particular, in the group of students, there were significant correlations between the following indicators: “Communication with friends” and “Communication with fellow students” (ρ = 0.689), “Sharing daily life with other people” and “Information for social activity” (ρ = 0.511), “Search for information, including information related to work and studies” and “Quick receiving of the information about the educational process” (ρ = 0.557). The group of teachers was characterized by only one correlation relationship - “Quick transmitting of the information about the educational process” and “Contacting students” (ρ = 0.646).

The correlation relationships by the groups of residents of Russia and Kazakhstan also showed different structural components within the matrix of motives for using social networks. In particular, Russian residents demonstrated the relationship between the following indicators: “Sharing daily life with other people” and “Quick receiving (transmitting) of the information about the educational process” (ρ = 0.706), as well as “Hobby and self-development” and “Search for information, including information related to work or studies” (ρ = 0.616). The residents of Kazakhstan mentioned the correlation between the following indicators: “Communication with friends” and “Hobby and self-development” (ρ = 0.559), “Quick receiving (transmitting) of the information about the educational process” and “Information for social activity” (ρ = 0.722), “Quick receiving (transmitting) of the information about the educational process” and “Contacting teachers (students)” (ρ = 0.592). In fact, the structural components of the motives for using social networks by the residents of Azerbaijan were similar to the results obtained in Kazakhstan: “Quick receiving (transmitting) of the information about the educational process” and “Information for social activity” (ρ = 0.723), “Quick receiving (transmitting) of the information about the educational process” and “Contacting teachers (students)” (ρ = 0.617) were a bit more significant.

5 Discussion

The study showed both general trends in the use of social networks in the educational process and certain differences related to socio-demographic and cultural characteristics. On the one hand, there are certain common preferences for social net-
works; in particular, VK is used by students while teachers prefer Facebook. The data obtained are largely congruent with other studies based on Russian [25] and Kazakhstan [26] samples. It is also demonstrated that young people prefer VK compared to older people who like Facebook. There is no doubt that such results are not relevant to the USA or EU, where VK is not popular, and young people use Facebook more actively [27]. Moreover, Russian teachers do not use Facebook in a much more different way compared to the general public (48% and 66%) [28]; however, the teachers from Kazakhstan are much more active Facebook users compared to the general indicators across the country (19% and 49%) [29].

Quite often, studies on the pedagogical possibilities of social media rely precisely on the experience of using Facebook as the most popular of them. A number of works indicate that the capabilities and design of this media are optimally suited to fulfill a number of training and development goals for students and schoolchildren [12, 30]. Quite often, studies on the pedagogical possibilities of social media are based precisely on the experience of using Facebook as the most popular of them. A number of works indicate that the capabilities and design of this media are optimally suited to fulfill a number of training and development goals for students and schoolchildren [8]. In fact, it makes sense to say that the individualized design features and the capabilities of different social networking are oriented towards various tasks and can be used depending on what kind of training tasks teachers and students face. This choice is especially common in collaborative learning or blended learning when the teacher selects digital and technical support tools for learning from a wide variety of possibilities [31, 32].

In addition, according to the analysis of the answers, there are certain age-related differences in the structure and intensity of communication on social media. In particular, students are much more likely to turn to social networks in order to satisfy various requests and needs compared to teachers. At first glimpse, the data obtained coincide with the conclusions made in other studies: teachers are less focused on the use of social networks compared to students [33]. On the other hand, there is a qualitative difference in the use of social networks by students and teachers. According to the results of our study, students are more interested in communication through social media and they are much more proficient users compared to teachers; there is no significant difference in terms of using social networks as an additional resource for self-development. However, when analyzing the use of social networks to obtain professional information, we can observe a clear increase in the number of teachers. In addition, a communicative component is also a motive for using social networks by teachers. The factor is not independent; it is closely included in the structure of professional motives, as well as the motives associated with professional self-development.

It should also be noted that, as a rule, the studies on the characteristics of educational strategies regarding the use of social media paid insufficient attention to gender differences. As a rule, when the gender component is considered, a more intensive use of social networks by females is noted [21]. There is an increasing number of studies being conducted in the post-Soviet space. In particular, the researchers note gender inequality both in the features of higher education and in the use of social networks in the educational process [34]. The results of our study showed that the relationship...
between gender and the intensity of the use of social media is more complex. In particular, there were almost no differences in the use of social networks in the educational process between male and female students from Russia and Kazakhstan. On the other hand, the analysis of informal communication, the involvement in finding new contacts and orientation towards self-presentation showed that female students from Russia were more active compared to the female students from Kazakhstan.

Special attention should be given to the presence of a certain regional specificity of using social networks in the educational process. In particular, students from Russia more often used social networks to expand contacts and contribute to self-development. It should be emphasized that the data obtained do not indicate the closed nature of students in Kazakhstan, but demonstrate different communication practices. Probably, due to certain social and cultural differences, Russian students prefer a more impersonal online communication, while students in Kazakhstan and Azerbaijan are more likely to use direct interaction practices. On the other hand, the gender-based analysis of communication practices showed that the motives for using social networks by women in Russia and Kazakhstan have their own specifics. Women in Kazakhstan use social media in the context of the educational process while Russian women (especially students) are more likely to consider social networks as a platform for self-presentation and expanding contacts. Thus, it can be said that there are various strategies for obtaining and using information through social networks that are mediated by existing cultural and social practices. In particular, the communication strategies of the Russian sample are constructively individualistic; they involve the use of any information from the standpoint of individual self-development, self-presentation, or achievement of personal goals. On the other hand, the Kazakhstan sample uses a value-normative strategy for obtaining information, which involves the use and construction of information within a broader social context in which individual communication process participants can supplement and correct the information that comes to a particular communication process participant.

6 Conclusion

According to the literature review, social networks are a fairly convenient platform for the educational process implementation. In this regard, social media have attracted a lot of attention as one of the learning mechanisms. There is a clear shift from emphasizing their negative impact on learning processes to studying the real situation associated with the use of social networks in the education system. In our research, we tried to systematically consider social networks based on the interaction between the educational process participants and the implementation of educational activities. It has been shown that there are various strategies for using social networks that depend on the sociocultural conditions in which the educational process participant is located. In particular, the Russian sample prefers a constructive-individualistic strategy for using social networks while the respondents from Kazakhstan and Azerbaijan use a value-normative one. The different attitude of students and teachers towards the use of social networks is noteworthy; in particular, teachers often use Facebook as the
main social network while students prefer Instagram and VK. There is no doubt that this situation should be taken into account when building the educational process to create a wider intersection space. The teachers and students also had different leading motives for using social networks. Communication and motives associated with self-representation prevail among students. The use of social media by teachers is largely mediated by their professional activities.

The analysis of social networks within the framework of the system and structural approach used in the study makes it possible to build other forms of interaction between the teacher and students. A teacher coordinates students’ independent intellectual activity rather than transmits knowledge; students become not just consumers of educational information, but active participants in the creation of an intellectual product.

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83%D1%80%D0%BD%D0%BE%D1%81%D0%BE%D0%B2%D0%B0_%D0%A0%D0%98%D0%A4+%D0%9A%D0%98%D0%91%202019.pdf (accessed on 30 May 2020).

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8 Authors

Anna Berestova is a Candidate of Medical Sciences. She works as an Associate Professor at Department of Pathological Anatomy at I.M. Sechenov First Moscow State Medical University (Sechenov University), Moscow, Russian Federation. berestanna@yandex.ru

Turkan Alizade is a teacher of Computer Science Department at Azerbaijan State Pedagogical University, Baku, Azerbaijan. Research interests include theory and methodology of training and education (methods of teaching computer science). turkan.alizade.92@mail.ru

Zaure Umirzakova is a Candidate of Philological Sciences. She works as an Assistant Professor of Language center at University of International Business, Almaty, Kazakhstan. She is interested in comparative linguacultural, communicative linguistics, pragma linguistics. Zaure.aru@mail.ru

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