Digital Technology in the Field of Educational Services

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ABSTRACT

The relevance of the investigated problem is conditioned by the rapid introduction of digital technologies into all practice areas, in particular, into the field of educational services. The aim of the article is to present the results of the research on the trends of the digital technologies' usage in the field of educational services for the period 2005-2015 y.y. The leading method for the study of this problem is represented by conduct a survey through questionnaires of the professors and students of Russian and foreign educational institutions for the period 2005-2015 y.y., a sampling of more than 1000 people, that made it possible to objectify the results of the study. On the basis of the wide investigative material, the general regularities in the use of the digital technologies in education have been identified. As marked in the article, the role of the lecturer with the development of information technologies is changing into a new type of the lecturer - instructor for students. The very fact, that students actively use digital technologies, at the same time does not mean that they make use of them in order to increase the level of their training. The paper substantiates the fact that without the methodological working out of the introduction and use of digital technologies in the process of training, it will be difficult to monitor the changes. The article materials are of practical value to the participants of educational services field. The authors express their appreciation to the direction, professors and students of the educational institutions, participating in the survey.

Keywords: Digital Technologies, Education, Information, Educational Services
JEL Classifications: A23, I23, I26

1. INTRODUCTION

In modern society, any market is somehow linked with information technologies. In full measure it is applicable to educational services (Bower and Sturman, 2015; Larionova et al., 2015; MacNeill and Kraan, 2010; Shurville et al., 2008). Effective use of the digital technologies is tightly related to informational and educational space of the institute. Informational and educational space of the university is defined as a systematically organized set of special resources and means, meeting the educational needs of the customers. The development of informational and educational space of the university provides the integrated effectiveness and education quality which, in their turn, under the mismatch of the expectations and demands of society cause alarm and create the need to find new solutions to the problems of education (Golubev and Testo, 2015; Conole, 2012; Ranney and Troop-Gordon, 2015; Johnson et al., 2009). It should be mentioned, that effectiveness

and education quality are declared within the United Nations framework.

There are other reasons, why the informational and educational spaces have become the object of intensive scientific research (Büyükbaykal, 2015). Among such reasons we can separate out the emergence of a new consumer of educational services with the new perception of the studied material, having all-round idea of the similar processes and phenomena (Lazlo, 2014). Such perception impacts the construction of the cause-effect relationship between objects, processes and phenomena that requires from the organization of educational process to use the proper technologies, understandable to the new consumer (Popovici and Mironov, 2015; Sanchez-Antolin et al., 2014).

High expectations in researches are associated with the introduction of the new digital technologies into the learning process. In this

connection the role of the lecturer has significantly changed. The professor is in charge with the content of methodical and training materials, he trains, consults and checks the results of the adoption of the studied material online (Dendev, 2013). Nowadays, digital technologies play a leading role in the basis of the creation of the material for educational process (Zaitseva et al., 2014).

2. RESEARCH METHODOLOGY

In order to investigate the trends of the digital technologies' usage in the field of educational services, the authors for a long period have been carrying out a research, based on a survey of scientific and pedagogical staff and students of the higher education institutions. As in several other studies (Waycott et al., 2010; Cassidy et al., 2014).

The methodological tools of the conducted study can be viewed as follows: A survey with a sample of at least 1000 respondents - students of the institutes of higher education and not <100 representatives of academic staff.

1000 students of all ages (41% of boys and 59% of girls) took part in the survey in 2005. In 2005 researchers were interested in the forms of the holding of training sessions (for example, the proportion of lectures, seminars, workshops, laboratory classes), as well as in the methods used (trainings, business games, cases, etc.). The main forms of training sessions were lectures, seminars and workshops, and methods - mostly practice exercises (problem's solution) and reports.

During the questioning of the academic staff, 122 members were interviewed. Correspondingly, Doctors of Science are represented by - 2%, Candidates of Science by - 57%, the rest by - 43%. Fifteen questions were asked, some of which were similar to those, asked to the students.

In 2011, 1200 students (37% of boys and 63% of girls) and 50 professors of Russian University (Russian State University of Tourism and Service – hereinafter RSUTS), and 15 professors and 40 students of International Business School (Budapest, Hungary) (hereinafter - IBS), as well as the parents of the interviewed students for the study of public opinion on technological innovations took part in the survey for the study of the public opinion about technological innovations. It should be noted, that the structure of the survey differed from that of 2005, digital technology were paid more attention, as they became more important and relevant.

2000 students of the Russian State Social University and 300 lecturers took part In the process of conducting a survey in 2015. It is significantly, that, in contrast to previous years, the survey was conducted in interactive form.

3. RESULTS

3.1. The Results of Processing the Conducted Students' Surveys in 2005, Reported in Figures 1-3

The use of information technologies in educational process was characterized by the question "What forms of presentation of the material do your lecturers use in the process of learning?"

Answers to the question are illustrated in Figure 1.

Another issue that was of interest of the researchers in that period was resources, necessary for the effective holding of the training sessions. For this purpose, the questionnaire included two questions "What kind of information materials are necessary for the effective holding of the training sessions?" and "What sources of information do you use for the preparation for training sessions?" and which of them should be made more accessible.

Answers to the question are illustrated in Figures 2 and 3.

The results of the academic staff survey showed that the distribution of the answers about the form of the holding of the training sessions were the following: Lectures - 100%, seminars - 66%, workshops and laboratory classes - 34%, only 7% of professors use cases and 3% - trainings.

Concerning the means of the holding of the training sessions, 2% of the lecturers used multimedia courses and 85% - tests. At the same time, the professors were asked a question that did prevent them


Figure 1: Answers to the question "What forms of presentation of the material do your lecturers use in the process of learning?" (in % of the respondents)
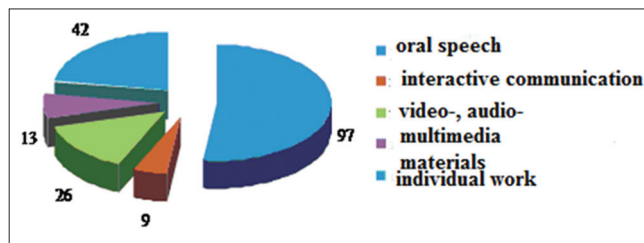
Figure 2: Answers to the question "What kind of information materials are necessary for the effective holding of the training sessions?" (in % of the respondents)
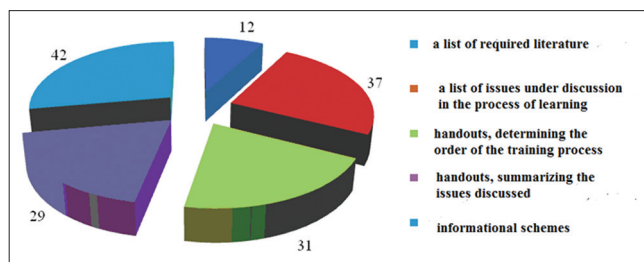
Figure 3: Answers to the question about the effectiveness and relevance of various sources of information (in % of the respondents)
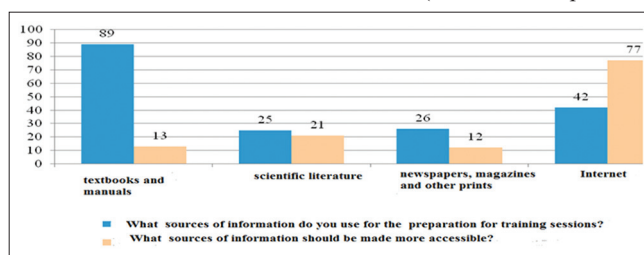
from the use of interactive methods and information technologies in the teaching process. The following results were obtained:
- Lack of experience of work on computer (64%);
- Lecture-rooms are not equipped (78%);
- No time for the development of appropriate course (12%);
- Traditional approaches are better than modern (2%).
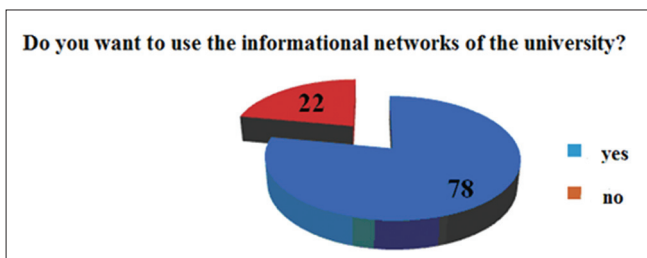
3.2. The Results of the 2011 Survey

Apart from the professors and students, the parents of the latters participated in the survey. Since the parents are not involved in the organization of educational process for the students, they have a certain advantage when introducing information technologies. For example, by means of the internet, the parents can connect to the university network in order to check the progress of their children. In other words, the parents can obtain information, at that, not only about marks, but also about the payment and other important aspects.

From the data of Figure 4 it is seen that a lot of parents would like to use various technologies of information exchange to monitor the progress of their children.

Further are the results of a survey of Russian and European students of educational institutions. Several questions concerned the form of supply of the materials and their efficiency (Figures 5 and 6).

Many IBS professors used video- and audio- materials, as well as other interactive forms. From the point of view of efficiency of perception, students marked exactly video- and audio-materials, individual work. Oral speech, interactive forms and multimedia materials earned lower ratings among the students. Such ratings were obtained, possibly, because the students had something to compare, multimedia systems became common and did not provoke the interest. Lectures in the form of cartoons, short films (interactive methods) were becoming more interesting and relevant for them.
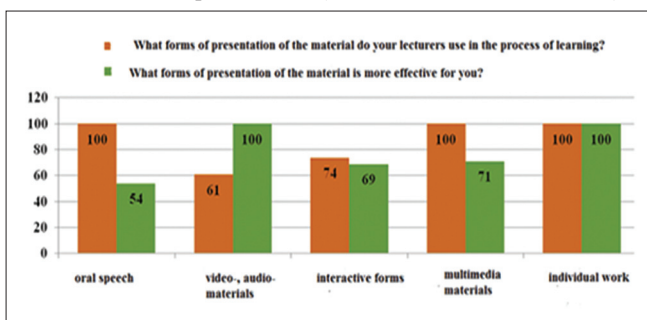
The results of the RSUTS students' answers differ significantly from those of IBS students'. The students pointed that all professors used oral speech, and other forms were used in a minor way. At the same time, the students noted that they did not use the interactive forms. From the point of view of efficiency of perception, students noted video- and audio-materials, interactive forms, multimedia materials, but individual work in terms of effectiveness was estimated by the students of RSUTS at a low level (8% of the students, compared to IBS - 100%). Instead, RSUTS students more appreciated the importance of the oral speech in the holding of training sessions (18% more).

Then there was an evaluation of the use of information and communication technologies by the students (Figure 7). IBS students pointed that they used an internal network, which was the development of the staff, also they used the internet and electronic library, and also sometimes had to meet personally with the professors and dean's office personnel. The communication was not carried out through the monitor.

RSUTS students pointed that, even to a small extent small, but they used an internal network, at that 100% of the students indicated its effectiveness. They also used the internet and electronic library, and also sometimes had to meet personally with the professors and dean's office personnel. Both, RSUTS and IBS students considered an internal network, the internet, electronic library as effective, more than half of the students recognized the need for personal meetings (Figure 8).

Several questions touched the evaluation of the use by the lecturers of information technologies in classes. IBS students evaluated the work of IT worse than their very use in classes. Thus, only 2% of the students evaluated the work of technology, and their use in classes, only 5% (Figure 9).

Figure 4: The opinion of the parents about the possibility of the use of information resources of the higher education institution

Figure 5: The answers of the surveyed respondents on the teaching materials' forms presentation (International Business School)

Figure 6: The answers of the surveyed respondents on the teaching materials' forms presentation (Russian State University of Tourism and Service)
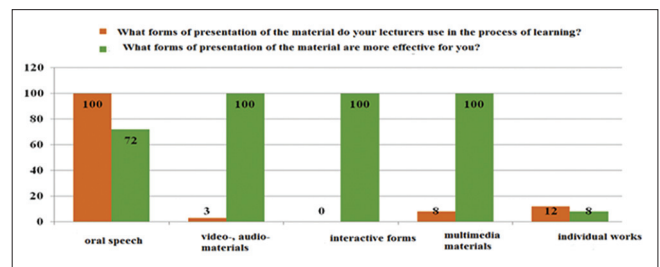
Figure 7: The answers of the surveyed respondents on the information and communication technologies used in the University (International Business School)
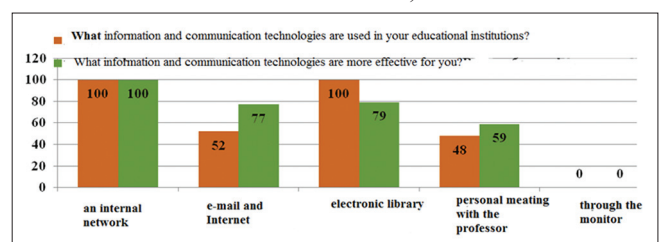
There were students who evaluated the work of the IT system as "bad" (3%). The main body of the respondents evaluated the operation of the system as "very good" (52%) and "good" (43%). Most of the students considered that the use of information technologies in the learning process was necessary (Figure 10).

No students among the respondents evaluated the IT system of RSUTS as "very good" and "good," a small amount of students evaluated its work as "good" (23%), but the majority of students responded that RSUTS IT system worked "bad" (39%) and "very bad" (38%). The use of technologies in the classes was mostly evaluated by the students of RSUTS as "very good," a small percentage evaluated as "excellent" (9%) and "good" (4%). Most of RSUTS students, as well as IBS believed that the use of information technologies in the learning process was necessary.

At the end of the questionnaire the students were asked a question about the sources of information and their accessibility (Figure 11).

Figure 8: The answers of the surveyed respondents on the information and communication technologies used in the University (Russian State University of Tourism and Service)
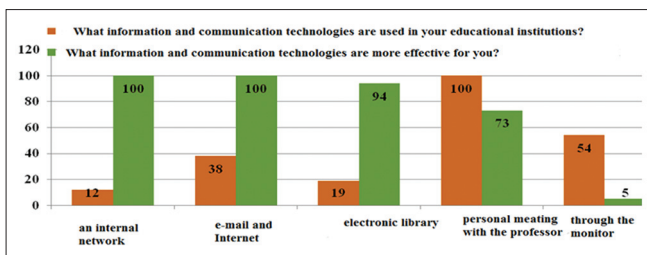
Figure 9: The answers of the surveyed respondents on the evaluation of the used information technology (International Business School)

Figure 10: The answers of the surveyed respondents on the evaluation of the used information technology (Russian State University of Tourism and Service)
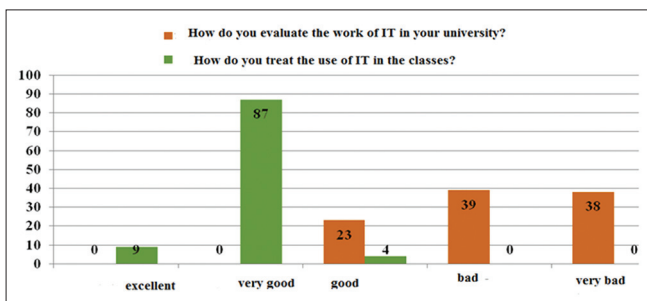
Most of the IBS interviewed students indicated that they would like to make the scientific literature (47%) and the internet (30%) more accessible, the latter was marked specifically for the use in the classes. Mass media - 14%, as well as textbooks and manuals did not remain without attention. The answers of RSUTS students on this issue varied significantly from that of the IBS. Russian students would like to make the internet (71%) more accessible, as well as in 2005, but the scientific literature was rated as last (5%). Mass media, textbooks and manuals ranked approximately equal shares (11% and 13%, respectively).

The answers of the students' confirmed the above-mentioned conclusions that the use of information technologies in education would allow to influence the quality of the learning process, and, consequently, the education.

The structure of the questionnaire for academic staff in 2011 also significantly differed from this in 2005, the issues on the use of digital technologies were paid more attention (Figures 12-14).

Analyzing the data of Figures 12 and 13, it can be said that the professors of IBS used technologies during the training sessions more frequently. Thus, 87% of IBS respondents said that they always used IT, while in RSUTS – only 6%. Herewith, 36% of the RSUTS professors (18 persons) said that they never used information technologies in the classes and pointed out as a reason the lack of appropriate equipment. Besides, RSUTS and IBS lecturers noted the difficulties of technical character. In addition, the professors indicated the time required and incompatible software.

As listed in Figure 14, the opinions of RSUTS and IBS professors almost coincided. Thus, a little more than half of the lecturers believed that the use of IT required more time for the preparation for training sessions, all respondents considered that it assisted in the holding of the classes, 80% treated the use of IT as obligatory, 20% - Moderate. Such unanimity of the professors allows to say about growing penetration of technology into education and educational process. The professors will hardly write their lectures today by hand, as it is faster and more convenient to do with a help of computer.

In the course of the survey, the lecturers were asked a question about the role of the teacher in the process of learning. The opinions of the professors of observable universities differed on this subject. Thus, the greater part of the RSUTS lecturers believed at that moment that with the use of information technologies not

Figure 11: The answers of the interviewed students to the question "What sources of information should be made more accessible? (in % of the respondents)
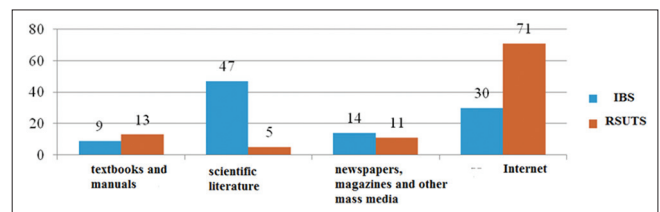
the role of the professor changed, but the form of presentation of the material. IBS lecturers, on the contrary, said that the teacher became a consultant, showman, ceased to be the "information expert" and his role changed considerably. Most of the surveyed lecturers noted that the process of learning had changed with the introduction of IT. All IBS professors and 72% of those in RSUTS considered so. The opinions of the professors differed considerably on the subject of adaptation to changing information technologies. Majority of RSUTS professors at the moment of the survey considered that it was difficult to adapt to changes in the sphere of IT, while a lot of IBS professors, on the contrary, said that the process was rather simple. Probably, it was due to IBS professors' great experience of using information technologies.

In conducting the survey in 2011, the future of digital technologies was not left without attention.

The opinions of the IBS and RSUTS professors slightly differed, however, there was an agreement that the use of internal university network would improve the effectiveness of students' informing. The greater part of RSUTS and IBS professors suggested that e-books - The future of the manuals, the opinions on the use of e-mail for communication with students varied among the teachers.
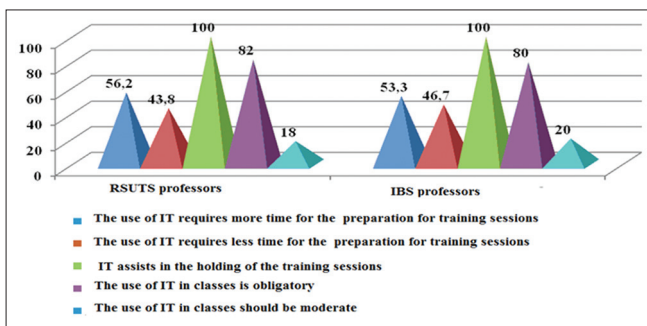
Figure 12: The answers of the interviewed professors on the frequency of IT use in classes, %
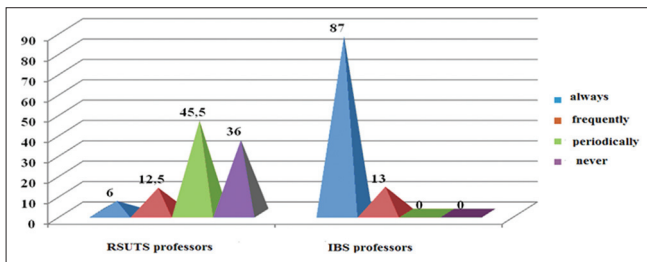
Figure 13: Difficulties, associated with the use of IT during the training sessions, in %
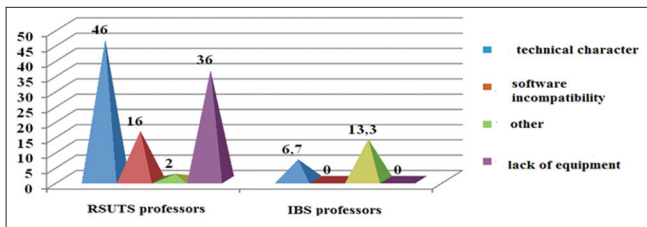
Figure 14: The pluses and minuses of the use of IT technologies in the classes, %

So, most of IBS lecturers marked such form of communication as a good way to maintain the connection, while RSUTS teachers did not think so (Figure 15).

In addition, in the course of the survey there were obtained the views of the professors on the use of various gadgets in the classes. The opinions of RSUTS and IBS professors almost coincided on these issues. All respondents mentioned the possibility of using gadgets in classes and growth of their holding in this case. 76% of RSUTS teachers and 53.3% of IBS believed that IT gave students more opportunities for self-expression.

3.3. The Results of the 2015 Survey

The answers significantly differ from the data of 2005 and 2011, which is obvious, as digital technologies are now widely used in Russian universities. Many students noted that beside the meeting during the classes it is enough to communicate with the lecturers on internal network or through the e-mail, which is why the importance of personal meetings outside the classes, as well as with the dean's office is significantly reducing. This allows not only to communicate effectively, but also to save "time and money."

Another issue, in which the researchers are interested, was the question of assessing the quality and effectiveness of information technologies of university (Figure 16).

Students evaluated the work of university digital technologies in most cases as "very good" and "good" (67%), but there were also those who assessed the work of internal network as "very bad" (8%). While explaining the reasons, it was found out that, as in 2011, there was a mismatch of software and the opportunities of digital technologies use. Students noted that tutors had the material, but it "could not be reproduced in classes, as it was no program .." (Figure 17).

Figure 18 presents the answers on the question about the use of digital technologies in the classes by the professors.

The obtained results proved that digital technologies penetrated into the educational process, and only 1% of the lecturers did not use them in the classes. Another question that the professors were asked - was "Do you consider the use of digital-technologies in

Figure 15: The use of IT in the interaction between student, lecturer and dean's office, %
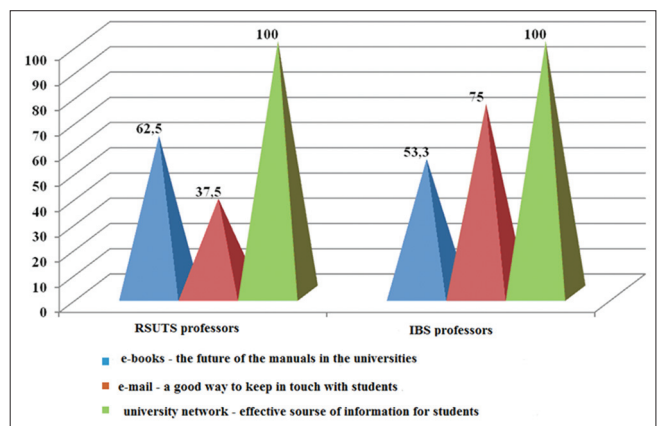
education as appropriate?" Online survey on this issue is still being held, but preliminary results show that the majority of respondents consider it necessary to adjust the educational methods and technologies to the requirements of time (87%).

4. DISCUSSION

With the introduction of technological innovations of twenty-first century, the role of the instructor has definitely changed. Earlier, the tutor was the main source of the information for students, "an expert." It was happening not because the teacher had huge volumes of the information; consequently, information was structured and easy to understand. The drawback was that the students were just sitting in the audience and received the information. With the introduction of technologies the role of "an expert" has got hold; this role is still relevant. The lecturers are still the bearers of a great deal of information, but they are no longer the only source of it. A new type of tutor has appeared; now the teacher is more like a mentor or instructor for students. The main function of a new type of the lecturer is to lead the students in independent finding of the information, push them to study, helping them in research.

Almost all professors believe that technologies are changing the educational system. They like the fact that the presentation of information to the students has become easier. Now the information is presented in small portions or only by the key points that, once again, provides students with more space for independent research.

With the occurrence of technological innovations, the students develop more advanced presentation skills (Spiegel and Rodríguez, 2016). The simplicity of information interchange with the students - is another point, which is a significant advantage of

the use of digital technologies. Appointment of tutorials, feedback concerning assignments and marks - all this has become much easier with the appearance of modern means of communication, through the Internet, chat-servers, etc. Information exchange between students and lecturers in class is becoming more and more informal. Students are not afraid to express their opinion, to argue with the tutors during lectures, that increases their self-reliance and is very important. Training sessions have become more topical, the possibilities of presentation the material so diverse that they allow to develop the various skills of students (Zaitseva, 2013; Zaitseva et al., 2016).

Students today represent a new generation of people - the generation "Y" ("Millennium"), people born in 1983-2000 y.y., at the turn of the centuries, at the beginning of the new millennium. They got over the collapse of the Soviet Union, military conflicts and acts of terrorism, they saw the trends in modern digital technologies. The Internet and gadgets are usual practice for them. It is encouraging to note, that such ideas as a civic duty and morality, responsibility have entered the system of life values of the people of this generation (Vinogradova and Babacaev, 2015). However, at the same time, they want to get an immediate reward and tend to comfortable working conditions, they are notable for high mobility. People of this generation are characterized by a lack of affection to material values, stability is not of such a great significance as for the people of previous generations (about 60% of teachers).

Further, the gap will be only increasing, as the generation Z comes last generation Y, now there are children under 15 years (Albats, 2011). The amount of information that they continuously process, is already so huge that it exceeds the ability of a person to learn it. The rate of development of the phenomena and processes does not allow to make a judgment about the values, the people of this generation will follow, they grow up under the crisis, changing their environment in economic, political and social aspects, so they are accustomed to rely on themselves and the longing to survive helps them to confront the crisis. Prosperity of science and innovation, thrift are fell pur the lifetime of this generation, hence the ability to deal with crises.

The teaching staff is also exposed by substitution with time. People of "baby boomers" generation (1943-1963 y.y. of birth) leave the academic staff and their place is being gradually occupied by representatives of generation X, completely different

Figure 16: The answers of the surveyed respondents (in %) on the information and communication technologies used in the University (Russian State Social University)
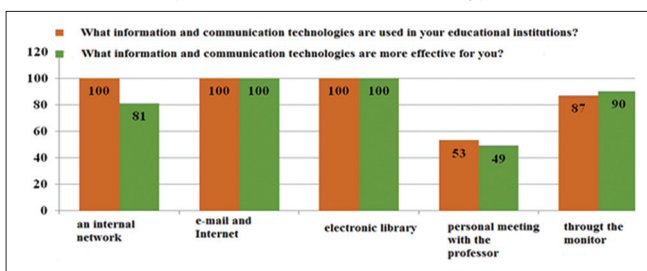
Figure 17: The answers of the surveyed respondents (in %) on the evaluation of the used information technology (Russian State Social University)
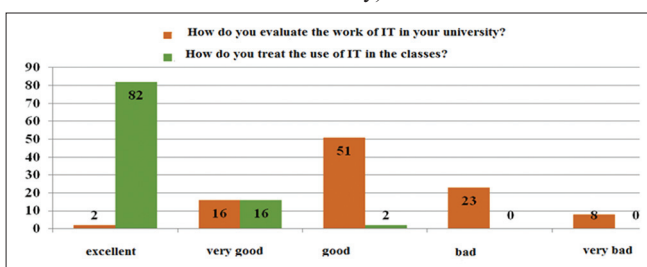
Figure 18: The answers of the Russian State Social University professors on the question about the frequency of the use of digital technologies in the classes, %
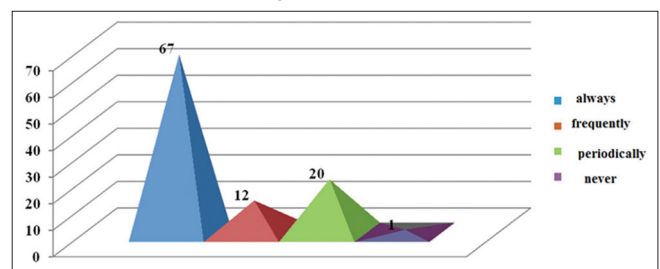
from generation Z. The ability of X representatives to learn, think systemically and face up to the challenges allows now to successfully integrate the digital technologies into educational process and to improve the effectiveness of the educational process, to communicate with the students in understandable language.

5. CONCLUSION

The studies and the dynamics of the obtained results allow to conclude that digital technologies will further enter our life and all related spheres. First of all, this process will be spreading in the field of educational services. However, without methodological development of the introduction and use of digital technologies in the learning process, it will be more difficult to monitor the changes and a situation, when their use is likely to harm education, not to help it, may occur.

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