

The Internet and Future Teachers of Yakutia: Analysis of Research Results for the Period from 2011 to 2015

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Abstract

Background/Objectives: The study is focused on examination of the use of information technologies and the Internet in schools and higher educational institutions of Yakutia in accordance with the policy of education informatization in Russia. **Methods/Statistical Analysis:** For this purpose, a questionnaire has been elaborated. The survey method includes a set of questions addressed to the respondent. This survey technique enables to determine the reasons of the respondents' motivation for the use of the Internet, as well as to identify opportunities of using new educational technologies in schools, universities and institutions of Yakutia. **Findings:** Unlike existing modern education informatization concepts, the proposed approach allows determining the motives of the Internet use by students in the regional high school. The survey results show that an important aspect of the Internet use in educational activities consists in the following: Its use in monitoring and evaluation of the quality of education; its integration in teaching and learning processes; study of the various impacts on the health and behavior of students; identification of priority areas that most closely correspond to resources, infrastructure and the needs of the higher education institution. It should be noted that the survey questionnaire is easy to use; the retrieval of necessary indicators and indices presents no problems. This gives theoretical grounds for use of the Internet when performing educational and cognitive tasks in conditions of education globalization and informatization. Future teachers shall professionally and technologically provide all the possibilities of new technologies in the educational process. **Applications/Improvements:** The study allowed solving the problems and paying special attention to the education workers to ensure the safe use of the Internet in the educational process. The work has been introduced at the M. K. Ammosov North-Eastern Federal University.

Keywords: Future Teachers, Internet Network, Research Results, Survey, Yakutia

1. Introduction

Modern experience of implementing e-learning based on the use of Information and Communication Technologies (ICT) in a multi-level system of education shows the need for cooperation between educational institutions in the field of educational space informatization. Also, the importance of joint efforts of teachers, school teachers and experts in the use of modern information technologies is increasing due to the complexity of implementation in the educational process of all the variety of software and problems that arise in the process of preparation of future teachers in the direction of teacher education.

The leading feature of modern educational technologies, largely determines the possibility of transition from an industrial to information society is their interactive nature. In a contemporary context in the educational sphere it is important to use Internet resources. In the Internet educational environment students reasonably create their web-pages with text, sound and graphics, use the electronic resources of the network.

2. Literature Review

Thus, in the work by¹ the virtual reality is evaluated as a special cultural education, reflecting, but not duplicating, exactly real social space. It is presented the most fully in

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information and communication network, particularly in such technology as the basic function of Internet communications presented in the work by².

Currently, in the field of education, the Internet serves as a means of connection and communication between different clubs, associations in various activities in the field of education. In fact, we deal with a new, rapidly growing structure of socialization, forming a special communicative subculture and being one of the tools and means of forming the mass information consciousness. Historically, the researches on virtual communication were preceded by works devoted to the psychological consequences of computerization of work activity³.

It should be noted that in studies of scientific schools of Yakutia philosophical approaches of virtual communication culture understanding are just beginning to form. An analysis of research works shows that there are works, considering this perspective in the following well-known philosophical directions: Phenomenology, analytic philosophy, philosophy of mind, etc. As we know from first-hand, the question of the reality of the virtual world was considered in classical philosophy: In theories by Plato, R. Descartes and I. Kant. The study of the mechanisms and the nature of virtual reality in the human sciences is at the stage of formation. In⁴ "Strategy of self-presentation on the Internet and its connection with the real identity" consider the concept of "virtual computer reality" and "virtualization" and note that virtualization is the transition of core activities in the space of virtual networks. In this regard, it should be noted that the formation of a virtual informational competence of students at university is a basic requirement of the Federal State Educational Standards (FSSES) for the new generation. The university is regarded as a unique cultural educational environment and a universal communicative system in the works by⁵⁻⁷.

In the framework of the agreement on cooperation signed between A. I. Herzen RSPU (Saint-Petersburg) and the Department of Computer Science and Engineering of Pedagogical Institute M. K. Ammosov NEFU, the network master's "Corporate e-learning" program is introduced in the system of continuous education in Yakutia. Graduates of pedagogical universities on the basis of the use of electronic resources directly improve their teaching skills, receive advice from leading experts in the field of cloud technologies via Internet, improve their skills by participating in online conferences held by the Russian Federation and foreign associations, carry out virtual communication with students from foreign universities.

Thus, on the basis of the Pedagogical Institute M. K. Ammosov NEFU the pilot testing on the e-learning implementation in educational space was organized. Beginning with the first course, students will receive their access to the network training. Leading professors of A. I. Herzen RSPU and M. K. Ammosov NEFU are involved in the lessons. This approach of the educational process has the following positive results: Level of motivation for training sessions is increased; there is a strong attachment to the improvement of professional skills (as the practice shows, the majority of students perform one or another level of formation of informational competence).

In this regard, it should be noted that training courses for future teachers are organized in this way; creating an Electronic Methodical Complexes (EMC) relating all academic disciplines; lessons are conducted with the use of Internet resources. All of this contributes to the development of the informational educational environment of university in the formation of virtual communication using modern educational technologies. There is a local news network of more than a hundred computers with access to the Internet that operates in the pedagogical university. Classes are held in classrooms equipped with interactive whiteboards, media projectors, as well as with specially mounted workstations for teachers. A zone of free Internet access for students is created in the library; there are three computer labs, studio of computer design and video. On the server, there is a network media library of video tutorials, methodical materials for the core disciplines of the curriculum of basic educational training program for future teachers. Any student can find through the catalog books of interest and teaching material, download and install on his/her computer.

Thus, it should be noted that the purpose of the study is to determine the importance of online learning techniques, to increase the level of informational competence of the future teachers and the degree of its relevance in the educational process.

3. Research Methods

To achieve the objectives, the following research methods were used: Theoretical and methodological analysis, compilation, systematization, classification and modeling. Empirical methods include an experiment with the use of survey to identify the level of involvement and the extent of social networking. Reliability and validity of results is provided by the use of research procedures in accordance

with the standards of modern experimental psychology, as well as with a wide class of methods of recording and analyzing empirical data.

3.1 Empirical Methods

When evaluating a test question with a multiple choice the equilibrium assessment system is used. The response weight is determined by the formula: $W = B_{\max}/N = 100\%/N$, where B_{\max} – maximum score for the answer to this task, N – a total number of responses to a question. Counting the result is as follows: The weight is added for each correct response, for each incorrect it is taken away. $W_{\text{total}} = \sum W_{\text{right}} - \sum W_{\text{wrong}}$, where $W = W_{\text{wrong}} = W_{\text{right}}$; W_{right} – a point for the correct response (a response is considered as correct if a response is correct and it is selected, and a response is incorrect and it is not selected);

W_{wrong} – a score for the incorrect response (a response is considered as incorrect if a response is correct, but it is not selected, as well as if a response is incorrect and it is selected). Next this sum is normalized (the score range [-100; +100] is given to a range of [0, 100]):

$$W_{\text{total}} = W + 100/2.$$

The work with a question, in which the selection of several options of correct responses is supposed, in general, is similar to the work with a selection of one correct response. The maximum score (100%): All correct responses are marked, and only just they.

We considered the count with an example where there are two correct and two incorrect responses out of 4 ones. When answering this question one correct and one incorrect responses were selected.

The weight of each of the responses to the question is $W = B_{\max}/N = 100\% / 4 = 25\%$.

Counting is conducted in the following way: $W_{\text{total}} = 25\%$ (for the selected correct response) + 25% (for the unselected incorrect response) – 25% (for the unselected correct response) – 25% (for the selected incorrect response) = 0%.

4. Results and Discussion

The analysis of the results of questionnaire for students, pupils and teachers of schools in the Republic of Sakha (Yakutia) shows that the Internet is this universal means of communication, in which the technique of future teachers' training is implemented. Surveyed respondents noted that the use of Internet leads to the implementation

in the educational process of following activities: communicative, it means the use of e-mail, "chat", video conferencing, mailing lists, etc.; cognitive, reading books, network media, search for specific educational information or acquaintance with current news, distance learning, etc.; gaming, including the traditional sports games such as chess, checkers, Eastern games et al., as well as gambling with real partners via the Internet². Special test questions for the three large studies were developed. The first study involved 500 pupils of 14-17 years at national schools. The questionnaire for pupils included 21 questions of various kinds. We tried as much as possible to cover all aspects of the Internet use: the user activity, the use of computer games, a basic understanding of Internet users, as well as studying methods in the educational process of school-based online environment. The results of this study gave us an idea about how upper-formers use the Internet for the main basic educational disciplines.

The second step was conducting a study among students, a total sample of whom amounted to 1,200 people from 10 faculties and institutes of M. K. Ammosov NEFU. For this study, the questionnaire was finalized and included 30 questions, both of sociological and psychological orientation. It includes questions that determine the students' user activity and its content features, views about online risks, awareness of issues of Internet resources as well as special training methods and technologies: a technique of definition of Kimberley-Young Internet addiction, a technique to determine the emotional perception of the Internet, and a series of open questions that allow conducting qualitative analysis of the relationship to the Internet.

The third study was aimed at teachers of schools in Yakutsk city and the Republic. The study surveyed 300 teachers, who both use and do not use the Internet. The test includes questions aimed at ascertaining the views of teachers on the students' using Internet technologies, at determining the control level of children using the Internet by parents and the general awareness of the impact of modern technologies on the children's health and behavior.

Thanks to this kind of survey form, we defined the role of parents in using the Internet for educational purposes, and also got an opportunity to compare the teachers' ideas with upper-formers' opinions about online resources. The questionnaire included 30 questions concerning the following aspects: the teacher's user activity and its content, the idea of what for pupils use

the Internet, the motive of pupils using the Internet, the evaluation of Internet freedom, the emotional perception of Internet. This test, as well as a questionnaire for pupils, included a number of open questions, allowing determining negative experience while using Internet at home. The analysis of the survey results showed interesting and unique data on the basis of which we were able to carry out a comparative analysis of peculiarities of usage and perceptions of Internet by school teachers, parents and pupils.

We note a fairly high percentage of interest in the possibility of Internet resources use in the educational process at schools and the university. In relation to the increase of the number of textbooks and teaching material, there is a growing interest for e-learning among students. The students' attitude to information and communication technologies can be examined in terms of their interest to the demand for specific competencies in ICT, and through determining the scope of attractive to them aspects. To determine this field during the study the respondents were asked specific questions, which were asked to indicate their area of application of Internet resources and technologies, which they want to improve and develop.

All respondents would like to participate in groups developing projects related to the use of Information and Communication Technologies. 57% of the students select the work with video content as the activity base: Editing, creating "streams" and "screencasts". In the second place there is Web Programming – 25%, and in the third – layout and design of printed information. These results are indicative of motivation formation for the use of Internet technologies in the future professional activity.

Survey participants preferred the use of modern educational technologies, especially Internet resources in their professional activity – 75%.

The responses from the survey of teachers and students related to the area of educational paradigms preference – classic, developing and informational, showed the following results: Developing (37%), classical (24%) and informational (39%) education, besides a significant number of respondents distinguish the effectiveness of the use of Internet resources and technologies.

The same selection of respondents of opposing paradigms (developing and classical) is explained by the fact that on the one hand, there is the desire of productive changes in the educational system, on the other hand – well-known to everybody conservatism.

To determine the willingness of respondents to the application of new teaching aids a series of questions about the benefits of online education in various academic disciplines were asked. We tried to identify the needs of teachers and students to use specific online resources and technologies by questionnaire. The survey revealed that 47% of respondents see the need to improve the professional ICT competence in the field related to the Internet. In our opinion, this is due to the active introduction of information and communication technologies in all areas of respondents' activity. Despite the widespread of self-study courses and use of applications, they are clearly not enough; 25% of respondents noted the need to examine this trend in the use of applications in professional activities.

Assessing the efficiency of implemented model of future teachers training on the basis of Internet technologies one should note the quality changes relating students in this course study: The overwhelming majority of future teachers made educational projects based on Internet resources with interest; they expressed an open confidence to teachers and classmates, showed the ability for pedagogical communication in non-standard situations. Many students sought to increase informational competence in training courses in modules of informational block using electronic means and Internet resources and technologies.

Some students learned within traditional requirements for the use of electronic resources and electronic training components. On average, the indicators of search and cognitive, professional and creative level of students' experimental group were improved by 69.7% and 39.9% respectively. A pooled analysis of tests allows concluding that the introduction of communication means into the educational process is so rapid that it is difficult for teachers to study; and it should be noted that the subject field of research should be commenced in the process of future teachers-students' training in the terms of educational sphere globalization and informatization.

5. Conclusion

It was found that in future teachers-students' training for professional careers through the use of Internet technologies it is necessary to modernize the educational and methodical maintenance of educational electronic resources.

Existing difficulties in the preparation of electronic resources and teaching materials by the methods of online learning were identified.

The concept of online learning methods was concretized: Technological and methodological design, where the study of e-learning occurs in stages with the collaboration of students and teachers, aimed at increasing the level of competence and improving the informational content of the training programs of future teachers through the use of virtual communication tools.

The online learning methods peculiarity was highlighted: Substantial and procedural focus on achieving results simultaneously with assimilation of e-learning theory.

The main feature of teaching methods based on the usage of Internet resources and technologies becomes a variation as the manifold differences in abilities, needs, motivations and practical application of what was studied for the development of one's own capabilities.

The principle of diversity of psychological and educational support for the introduction of new educational technologies in the education sphere involves the use of various forms of its provision in the educational process. These forms may be: Questioning, testing, discussion, training, creation of conditions for self-diagnosis, trainees' self-assessment of their own characteristics, the provision of students with a choice of activities, forms of control and presentation of the results of their activities. The particular importance in future teachers' training in terms of e-learning, in our opinion, should be given to techniques of personal goal-setting of students and reflective technologies.

From the analysis of psychological and educational literature it appears that reflective activity allows students – future teachers to understand their individuality, uniqueness and purpose that “light up” from the consideration of their substantive work and its products, as student manifest themselves in spheres of knowledge and work methods prior to them that are inherent in their identities, thus reflective activities contribute to the selection of educational technologies.

The application of any form of scientific and methodological support of the Internet technologies usage is determined by the students' age characteristics, the goals and challenges facing the specific modules of basic educational training program for teachers in the educational institutions.

Thus, based on the experience of using e-learning-training in A. I. Herzen RSPU, MSUESI [Moscow State University of Economics, Statistics, and Informatics] and

abroad, the creative group considers it necessary to use the new features of cloud technologies in the development of electronic teaching materials that are relevant to the implementation of basic educational training program for future teachers.

The analysis of the study shows that the Internet training will boost the competitiveness of the university, which will multiply the number of magi strands and candidates trained in-service, wage increase of the future pedagogues, teachers and staff, welfare of workers of high and secondary vocational education⁸.

The introduction of new virtual technologies in the teacher education sphere will contribute to the development of digital textbooks with multimedia fragments using external electronic resources, and the use of cloud technologies in the development of smart-books through the use of technological innovations and Internet resources.

Thus, one should emphasize the necessity of the theoretical study and the development of concepts and innovative model of scientific and methodological, as well as informational and technological support of future teachers through the use of information and communication technologies and e-learning resources, including Internet resources.

6. References

1. Reid EM. Cultural formations in text-based virtual realities; 1994.
2. Donath JS. Identity and deception in the virtual community; 1997.
3. Tikhomirov OK, Guryeva LP. Psychological analysis of labor activity mediated by computers; 1986.
4. Belinskaya AE, Zhichkina AE. Strategy of self-presentation on the Internet and its connection with the real identity. Available from: <http://flogiston.df.ru/projects/articles/strategy.shtml>
5. Colin KK. Social informatics. Moscow: “Mir” Fund; 2003.
6. Parsons T. Essay of a social system. Translated by Kharrash A, Chesnokova VF, Belanovsky SA, editors. Moscow: Academic Project Publishing House; 2002. p. 545–687.
7. Education and informational culture. Sociological aspects. Works on the Sociology of Education. Moscow: REA Sociology of Education Center; 2000.
8. Barakhsanova EA, Nikolayev AM. Educational support for the introduction of digital resources in the educational process of the university. Teacher of the 21st Century. Moscow: Prometheus Publishing House; 2012. p. 74–8.