ATLANTIS PRESS

Psychological and Pedagogical Features of E-Learning in Higher Educational System: Analysis of Experience and Prospects of Development

Svetlana Korysheva
Academy of the Federal Penal System of Russia
Ryazan, Russian Federation

Irina Ganishina
Academy of the Federal Penal System of Russia
Ryazan, Russian Federation

Sergey Pashukov
Ryazan Institute (branch) of the Moscow Polytechnic
University

Marina Aipova
Ryazan State University named after S.A. Yesenin

Nikolaj Tkachenko
Academy of the Federal Penal System of Russia
Ryazan, Russian Federation

Ella Podnebesnaya
Academy of the Federal Penal System of Russia
Ryazan, Russian Federation

Abstract— The article discusses some psychological and pedagogical features of e-learning in educational institutions of higher education of the Russian Federation: law enforcement, humanitarian, technical universities. It has been established that e-learning is represented mainly by the Moodle system, distance learning in the Prometheus system using distance educational technologies. The aim of the study was to study the psychological and pedagogical features of e-learning in educational institutions of higher education. The hypothesis of the study was the assumption that the use of e-learning in educational organizations will optimize the training of highly qualified personnel in the higher education system. We used the following methods and techniques: observation, a survey, an archival method, an author's questionnaire on the satisfaction of students in educational institutions of higher education with the quality of electronic educational services provided, a psychological and pedagogical experiment, focus groups. Using the archival method allowed us to analyze the array of e-learning data in universities of various profiles. The author's questionnaire included an online survey of students using the author's questionnaire. The author's questionnaire contained ten questions about the specifics of using e-learning at a university. The psychological and pedagogical experiment contained ascertaining and formative stages, during which a comparative analysis of the effectiveness of e-learning in the training system for law enforcement agencies, humanitarian, technical universities using focus groups was carried out. In the course of a theoretical and empirical study, the authors identified communicative, organizational, personal characteristics of e-learning in educational institutions of higher education.

I. INTRODUCTION

Today, the priority task in the field of improving the training of highly qualified personnel in educational institutions of higher education in the Russian Federation is the use of modern educational technologies in the learning process at a university. The most important condition for the successful organization of the educational process is to ensure the high quality of teaching, therefore it is necessary to study the psychological and pedagogical features of e-learning. The possibility of using e-learning and distance learning technologies in higher education institutions is regulated by article 16 of the Federal Law "On Education in the Russian Federation" [1]. In accordance with the law, the main requirements for e-learning at a university are: accessibility of information, a variety of forms of information resources, completeness and efficiency of data received; application of modern information technologies; the presence of a local network; a sufficient number of allocated jobs for users in the reading room, teaching rooms, computer labs with Internet access; staffing of educational, scientific and reference information electronic funds of the library, etc. [1].

II. REVIEW OF LITERATURE AND METHODS

The problem of using information technologies in the educational process was considered in the works of a number of authors (M. Gaebel, D. Garrison, Lee Mimimiyoung, M.

Johnstone, V.P. Bespalko, I.V. Robert, N.G. Sabitova, M.A. Sorochinsky, T.N. Suvorova and others) [2,3,4,5,6,7,8,9,10]. The specifics of the use of distance learning technologies in the university is highlighted in the works of foreign and domestic scientists (D. Garrison, M. Moore, O. Peters, F. Saba, S. A. Bakleneva, E. S. Polat, V. P. Tikhomirov, S .A. Shchennikov) [3,4,11,12,13,14,15,1]. However, despite the comprehensiveness and depth of the research, the problem of studying the psychological and pedagogical features of e-learning in educational institutions of higher education is not sufficiently developed in modern science.

Objective: to study the psychological and pedagogical features of e-learning in educational institutions of higher education.

Research hypothesis: the use of e-learning in educational organizations will optimize the training of highly qualified personnel in the higher education system.

The methodological basis of the study was made up of the following theoretical and methodological principles and approaches: information technology, synergetic, systemic, activity-oriented, personality-activity, contextual.

Methods and techniques: observation, survey, archival method, the author's questionnaire of student satisfaction in higher education institutions with the quality of electronic educational services provided, psychological and pedagogical experiment, focus groups.

The scientific novelty of the study is to determine the psychological and pedagogical features of e-learning in educational institutions of higher education.

III. RESULTS

Using observation, the archival method allowed us to analyze the implementation of e-learning in some educational institutions of higher education: in law enforcement (Academy of the Federal Penal System of Russia), humanitarian (Ryazan State University named after S. Yesenin), technical university (Ryazan Institute (branch) of the Moscow Polytechnic University). It was found that in the Academy of the Federal Penal System of Russia, e-learning has been implemented since 2008, at the Ryazan Institute (branch) of the Moscow Polytechnic University - since 2011, at the Ryazan State University named after S.A. Yesenin - since 2012, which allowed us to gain experience in applying this educational technology for its further analysis. In order to implement the main educational programs of higher education in universities, there is an electronic educational environment based on the learning management systems Moodle and Prometheus using distance learning technologies.

To assess the effectiveness of e-learning, we used the survey method. We used the author's questionnaire of satisfaction of students in educational institutions of higher education with the quality of electronic educational services rendered (Korysheva S.E.), which includes a questionnaire of ten questions about the specifics of using e-learning in law enforcement, humanitarian, and technical universities. For this, focus groups consisting of 20 students each were selected by random sampling in each university. The survey was carried out in April 2019 and took place on-line. Let us dwell on the questions asked and the answers received in a more detailed way.

To question No. 1, "Does the teaching of disciplines in the electronic educational environment in your university meet the requirements of the present?" 92% of respondents answered positively, 6% negatively, 2% cannot unambiguously assess. Thus, the vast majority of students in universities of various profiles positively assess the educational process of the university in the electronic educational environment.

To the question No. 2, "Do they promote the development of independent thinking, do they encourage initiative, do they realize the creative potential of the person in the electronic educational environment?" 86% of the students answered in the affirmative, 4% of the respondents answered negatively and were unable to answer - 10%. Therefore, a significant part of the respondents evaluates learning in the electronic educational environment as positive.

To question No. 3, "Has your institution implemented the possibility of organizing classes based on information technology (the Moodle, Prometheus education systems)? 96% of students gave a positive answer, 4% had difficulty answering. There were no negative answers. However, according to the archival method, we found that only one of the three universities has a Prometheus remote system, while the Moodle system is implemented in all the universities under consideration.

To question No. 4, "Is the interaction between the teacher and students in the electronic educational environment effectively constructed, despite the fact that they are actually separated by distance?" 78% of respondents consider the interaction of teachers with students in the electronic educational environment to be effective, 16% of students are not effective, 6 % of students find it difficult to answer.

To question No. 5, "Are you provided with electronic teaching materials in all taught disciplines?" 92% of respondents answered positively, 8% found it difficult to answer, there were no negative allegations. Thus, the analysis of the answers shows that not all students are provided with electronic teaching materials in the required amount.

To question No. 6, "Are you satisfied with the organization of the control system provided for in the structure of educational material in the electronic educational environment: automatic control (through the testing system) and delayed control (with full-time testing)?" 70% of respondents answered positively, 20% were not satisfied, were at a loss answer 10%. Therefore, 30% of respondents are not satisfied with the existing organizations of the control system in the electronic educational environment, therefore, its improvement is necessary.

To question No. 7, "Are you satisfied with the organization of independent work using the electronic educational environment?" 90% of students answered yes, 10% - no. This means that the quality of the organization of independent work in universities using the electronic educational environment should be improved.

To the question No. 8 "Are you satisfied with access to the editions of the electronic library and electronic library systems?" All students answered positively (100%), which indicates the wide accessibility and efficient use of electronic library educational resources by students.

To question No. 9 "Are you satisfied with the quality of educational services provided in the electronic educational environment?" Only 58% answered positively, 32% - negatively, 10% - neutral. Consequently, a significant portion of students (42%) are not sufficiently satisfied with the quality of educational services provided in the electronic educational environment.

To question No. 10 "Indicate the main problems that arise in your electronic educational environment", a significant part of students (63%) noted the existing communicative, organizational, and personal problems. The analysis of communication problems showed that students have communication problems with both teachers (tutors) and other members of the group. These problems are caused by the student's reluctance to complete the task on time, personal indiscipline, and irresponsibility. The analysis of organizational problems allowed us to conclude that training in the electronic educational environment is more effective if the student has full knowledge of the curriculum in advance, the deadlines for completing assignments in distance or electronic forms, if the teacher timely posts assignments and tests in electronic educational environment, in chat rooms conducts a dialogue with students. Regarding problems of a personal nature, students noted both problems caused by the personality of the teacher (due to age characteristics, poor knowledge of the electronic educational environment, optionalness) and problems associated with the personality of the student (weak volitional control of emotional reactions, laziness, lack of discipline and irresponsibility).

In the 2018/19 academic year, as part of our formative experiment in higher education educational institutions (Academy of the Federal Penal System of Russia, Ryazan State University named after S.A. Yesenin, Ryazan Institute (branch) of Moscow Polytechnic University), a comparative analysis of student performance in educational programs was carried out higher education, implemented in electronic form of training. The first year cadets studying in the specialty 37.05.02 "Psychology of Service" of the Academy of the Federal Penal system of Russia, first-year students studying in the specialty 37.03.01 "Psychology" of Ryazan State University named after S.A. Yesenin took part in the experimental work. First-year students studying in the specialty 38.03.01 "Economics" of the Ryazan Institute (branch) of the Moscow Polytechnic University.

The hypothesis of the study was the assumption that the use of e-learning will improve the performance of students in higher education programs in law enforcement, humanitarian, and technical universities. Formative experiment took place for one year. In each university, 2 groups were formed: control, experimental. Each group included 25 people. In the control group, training took place in the traditional form, in the experimental - in electronic form.

The goal of the ascertaining stage of the psychological and pedagogical experiment was the diagnosis of student performance. As a result of the ascertaining experiment, we found that:

- the average mark of academic performance at the Academy of the Federal Penitentiary Service of Russia among first-year students of the specialty 37.05.02 "Psychology of official activity" was 3.74;

- average grade point score at Ryazan State University named after S.A. Yesenina among students in the first year of full-time education in the field of study 37.03.01 "Psychology" in the academic year 2018/19 amounted to 3.65;

- the average grade point at the Ryazan Institute (branch) of the Moscow Polytechnic University among first-year students in the full-time form of study in the training direction 38.03.01 "Economics" was 3.53.

The formative experiment took place for one year in universities of various fields. The goal of the formative experiment was to study the effectiveness of using e-learning in the educational process of universities. The control group included students in the traditional form of training, the experimental group - students in the electronic educational environment. Each group consisted of 25 students. As in the ascertaining experiment, the learning experiment was attended by students in higher educational institutions (Academy of the Federal Penal System of Russia, Ryazan State University named after S. Yesenin, Ryazan Institute (branch) of Moscow Polytechnic University) in the field of study and training 37.05.02 "Psychology of official activity" (University of law enforcement profile), 37.03.01" Psychology "(university of humanitarian profile), 38.03.01" Economics "(university of technical profile).

To conduct a comparative experiment, the technique proposed by P.I. Exemplary [16]. To ensure the possibility of comparing the results of the forming experiment, the average score of the results of examination sessions was considered.

The following conditions were chosen as varying conditions for conducting a psychological and pedagogical experiment: 1) in experimental groups, the basis for conducting classes and organizing independent work is training in an electronic educational environment, in control groups - a traditional form of training; 2) in experimental groups, cadets, students and students have the opportunity to conduct ongoing monitoring, intermediate certification (except for exams) in the electronic educational environment, and this is not provided for in control groups; 3) in experimental groups, students have access to electronic educational and methodological complexes containing methodological manuals on the study of course modules, lecture texts, manuals, tables, charts, glossaries, chronological tables, electronic textbooks; control and diagnostic materials, in control groups traditional teaching aids are used.

The nonvariable experimental conditions were as follows: equal duration of training in time; in the control and experimental groups, the same teachers taught; the

intermediate form of certification (exams) took place in the traditional form.

When analyzing performance in the control and experimental groups of three universities, the following results were obtained:

1. The average mark in academic performance at a law enforcement university (Academy of the Federal Penal System of Russia) for first-year students in specialty 37.05.02 "Psychology of official activity" in control group No. 1 was 3.78, in experimental group No. 2 - 4.2 .

2. The average grade point in a humanitarian university (Ryazan State University named after S. Yesenin) among first-year students in the full-time form of study in the field of study 37.03.01 "Psychology" in control group No. 3 was 3.68, in experimental group No. 4 - 4.05.

3. The average grade point in a technical university (Ryazan Institute (branch) of the Moscow Polytechnic University) among first-year students in the full-time form of study in the field of study 38.03.01 "Economics" in control group No. 5 was 3.60, in experimental group No. 6 - 4.1.

4. According to the results of the experiment using e-learning in all experimental groups there is a positive dynamics compared with the control groups (No. 1-2, No. 3-4. No. 5-6).

Thus, our psychological and pedagogical experiment proved that e-learning carried out in educational institutions of higher education is more effective than traditional. A survey using focus groups on the identified phenomenon showed that among the reasons for higher student performance using e-learning are the following: a desire to meet the requirements of modern time, the ability to use electronic training materials as necessary, clear regulation of tasks on topics the opportunity to get help from the teacher and group members through the "Moodle", "Prometheus" systems.

IV. RESULTS

The results of our theoretical and experimental research have established that:

1) the vast majority of students (92 %) in a different profile positively assess the educational process in the electronic educational environment;

2) a significant part of students (86 %) positively assess their own learning in the electronic educational environment;

3) in all the universities under study (Academy of the Federal Penal System of Russia, Ryazan State University named after S. Yesenin, Ryazan Institute (branch) of the Moscow Polytechnic University) all the opportunities for organizing classes for students based on information technologies (the Moodle, Prometheus training system ");

4) only 78 % of students see the interaction of teachers with students in the electronic educational environment quite effective;

5) not all students (about 8 %) are provided with the necessary electronic teaching materials;

6) 30% of respondents are not satisfied with the existing organizations of the control system in the electronic educational environment;

7) due to the fact that about 10% of students are not satisfied with the quality of the organization of independent work in universities, it is necessary to improve it using the electronic educational environment;

8) all students are satisfied with access to editions of the electronic library and electronic library systems;

9) a significant portion of students (42 %) are not sufficiently satisfied with the quality of the educational services provided in the electronic educational environment;

10) 63% of students noted problems arising in the electronic educational environment of a communicative, organizational, personal nature.

Using the formative experiment, it was proved that the use of e-learning in educational organizations allows optimizing the training of highly qualified personnel in the higher education system (in law enforcement, humanitarian, technical universities).

V. CONCLUSION

Using observation, a survey, an archival method, an author's questionnaire on the satisfaction of students in educational institutions of higher education with the quality of electronic educational services provided, focus groups, we have identified the psychological and pedagogical features of electronic learning, the recording of which will improve the quality of educational services provided at the university: communicative, organizational, personal. Communicative features include interaction with the teacher (tutor) and with other members of the group; organizational - information about the student's curriculum, deadlines for completing tasks in remote or electronic forms, timely placement of tasks and tests in an electronic educational environment, dialogue with students; personal features include those determined by the personality of the teacher (age-related features, good or poor knowledge of the electronic educational environment, optional), as well as those associated with the personality of the student (weak volitional control of emotional reactions, laziness, lack of discipline, irresponsibility).

Prospects for the development of e-learning in universities of law enforcement, humanitarian, technical profile are:

1) expanding the range of activities of a university teacher, taking into account the identified communicative, organizational, personal characteristics of students;

2) increasing the effectiveness of students' independent work using the electronic educational environment;

3) the use of the latest information systems of e-learning for the educational process: "Electronic University", "Associate Professor", WebTutor, etc.

4) the use of Web 2.0 social services in the learning process, allowing students to interact more actively with the teacher using chat rooms, wikis, blogs, mental maps, podcasts, social networks, etc .;

5) introduction of new technologies into the electronic educational environment of universities (electronic portfolio, virtual environments, audio and video podcasts, etc.).

REFERENCES

[1] Federal Law "On Education in the Russian Federation", dated 29 December 2012, no. 273-FZ as amended on 26 July 2019.

[2] M. Gaebel, E. Colucci, V. Kupriyanova, and R. Morais, "E-learning in European higher education institutions", Brussels: EUA Publications, 2014, 92 p.

[3] D. Garrison and N. Vaughan, "Blended learning in higher education: Framework, principles, and guidelines", Jossey-Bass, 2008, 272 p.

[4] R. Garrison, "Theoretical challenges for distance education in the 21st century: A shift from structural to transactional issues", International Review of Research in Open and Distance Learning, 2000, no. 1 (1), pp. 3–15.

[5] M. Johnstone, "Sally Open Educational Resources Serve the World", Educause Quarterly, 2010, no. 3 (28).

[6] V.P. Bespalko, "The pedagogical foundations of computer-controlled learning (E-Learning)", M.: T8RUGRAM, Public Education, 2018, 240 p.

[7] I.V. Robert, I. Sh. Mukhametzyanov, Y. A. Vagramenko, G. Yu. Yalamov, S. A. Beshenkov, E. V. Mindzaeva, and et al., "Monograph: E-learning and distance learning technologies. Theory and practice", Scientific publication, Part 1, Under the scientific. ed. Ya.A. Vagramenko, M.P. Karpenko, M.: Publishing House of SSU, 2017, 528 p.

[8] T. N. Suvorova, "Electronic educational resources as a component of the modern information educational environment", Informatics and Education, 2014, no. 3, pp. 53–57.

[9] V. P. Tikhomirov, "World on the way to smart education. New Opportunities for Development", Open Education, 2011, no. 3, pp. 22–27.

[10] S. A. Schennikov, L. V. Bendova, V. N. Golubkin, and et al. "Network organization management of open distance business education (monograph)", Scientific editor: V. N. Golubkin, O. K. Semenova, A. G. Chernyavskaya and et al.: MIM LINK, 2011, 266 p.

[11] M. Moore, "Toward a theory of independent learning and teaching", Journal of Higher Education, 1973, no. 44 (12), pp. 661–679.

[12] O. Peters, "Distance teaching and industrial production: a comparative interpretation in outline", in D. Sewart, D. Keegan y B. Holmberg (eds.), Distance Education: International Perspectives. London Croom Helm, 1983.

[13] S. A. Bakleneva, "Organization of independent activities of cadets of military universities on the basis of an electronic textbook: abstract of thesis", Place of protection: Voronezh, state un-t, Voronezh, 2018, 24 p.

[14] E. S. Polant, "New pedagogical and information technologies in the education system", Textbook for students of pedagogical universities and the continuing education system for teachers, M .: Academy, 2002, 272 p.

[15] N. G. Sabitova, "Formation of information and communication competencies of undergraduate students by means of electronic educational technologies", the Dissertation of the candidate of pedagogical sciences, Izhevsk 2012, 43 p.

[16] P. I. Obraztsov, "Methods and methodology of psychological and pedagogical research", St. Petersburg: Peter, 2004, p. 268 p.

[17] V. E. Bochkov, G. A. Krasnova, and V. M. Filippov, "State, Trends, Problems and the Role of Distance Learning in Cross-Border Education: Textbook", M.: RUDN University, 2008, 405 p.

[18] Lee Mimimiyoung, "E-Leaming in Asia", International Journalon E-Learning, 2011, pp. 867–878.

[19] N. E. Otekina, "E-learning, distance learning technologies", Innovative science, 2017, (4-2), pp. 127–128.

[20] I. V. Robert, "Psychological and pedagogical conditions for the creation and functioning of the information and educational space (concept)", Information Environment of Education and Science, 2014, no. 20, pp. 78–101.

[21] E. S. Polat, "Development of distance learning in school [Electronic resource]. Available at: http://distant.ioso.ru/library/publication/razvitie.htm (Accessed: 12 February 2013).

[22] F. Saba, "Distance education theory, methodology, and epistemology: A pragmatic paradigm", In Moore, M. Handbook of distance education: New Jersey: Lawrence Erlbaum Associate Publishers, 2003, pp. 3–20.

[23] M. A. Sorochinsky, "Psychological and pedagogical features of the use of e-learning", Scientific and methodological electronic journal "Concept", 2017, T. 6, pp. 274–278.