USE OF DISTANCE EDUCATIONAL TECHNOLOGIES FOR IMPROVING THE EFFECTIVENESS OF STUDENTS' PROFESSIONAL FORMATION

USO DE TECNOLOGIAS EDUCACIONAIS A DISTÂNCIA PARA MELHORAR A EFICÁCIA DA FORMAÇÃO PROFISSIONAL DOS ESTUDANTES

USO DE TECNOLOGÍAS EDUCATIVAS A DISTANCIA PARA MEJORAR LA EFECTIVIDAD DE LA FORMACIÓN PROFESIONAL DE LOS ESTUDIANTES

Igor Olegovich GURIANOV[1]
Natalia Vyacheslavovna KONOPLEVA[2]
Nataliia Vladimirovna GORBUNOVA[3]
Alina Alekseevna KHRULYOVA[4]

ABSTRACT: The need of increasing the effectiveness of students' professional formation determines the search for new mechanisms, models and technologies of educational processes, organizing a university based on systemic, competency-based and practice-oriented approaches. The theoretical and methodological foundations of increasing the effectiveness of students' professional formation are substantiated, including key scientific approaches (systemic, competency-based, practice-oriented) and the principles of their realization (professional orientation, competitiveness, interdisciplinarity, social partnership, practice orientation, pedagogical support, regionalization). A model for increasing the effectiveness of students' professional formation using distance educational technologies has been developed and experimentally tested. The pedagogical ways of increasing the effectiveness of future specialists' professional formation in universities, using distance educational technologies, have been identified. Distance educational technologies are considered as means of increasing the effectiveness of students' professional formation. Correct use and further development of the abovementioned technologies would improve the overall professional competency of intending specialists in education.

KEYWORDS: Distance educational technologies. Professional formation. Students. Model for increasing the effectiveness of professional formation.

---

[1] Kazan Federal University (KPFU), Kazan – Russia. Associate professor of the Department of Theory and Practice of Teaching Foreign Languages. Candidate of Philology. ORCID: https://orcid.org/0000-0001-6319-9713. E-mail: igor.goor@gmail.com

[2] Kazan Federal University (KPFU), Kazan – Russia. . Associate professor of the Department of Theory and Practice of Teaching Foreign Languages. Candidate of Philology. ORCID: https://orcid.org/0000-0002-1213-8803. E-mail: natali.konopleva@mail.ru

[3] Humanities and Education Science Academy (BRANCH), Simferopol – Russia. Director and Head of the Department of Pedagogical Skills of Primary School Teachers and Preschool Educators. Doctor of Pedagogical Sciences. ORCID: https://orcid.org/0000-0001-5377-9466. E-mail: natalya-gor2008@yandex.ru

[4] Humanities and Education Science Academy (BRANCH), Simferopol – Russia. Lecturer of the Department of Foreign Philology and Methods of Teaching, Institute of Philology. Candidate of Pedagogic Sciences. ORCID: https://orcid.org/0000-0002-8797-956X. E-mail: malinayalta@yandex.ru

Igor Olegovich GURIANOV; Natalia Vyacheslavovna KONOPLEVA; Nataliia Vladimirovna GORBUNOVA and Alina Alekseevna KHRULYOVA

RESUMO: *A necessidade de aumentar a eficácia da formação profissional dos estudantes determina a busca de novos mecanismos, modelos e tecnologias de organização do processo educacional, em uma universidade baseada em abordagens sistêmicas, baseadas na competência e orientadas para a prática. Os fundamentos teóricos e metodológicos para aumentar a eficácia da formação profissional dos estudantes são fundamentados, incluindo abordagens científicas fundamentais (sistêmica, baseada na competência, orientada para a prática) e os princípios de sua realização (orientação profissional, competitividade, interdisciplinaridade, parceria social, orientação prática, apoio pedagógico, regionalização). Um modelo para aumentar a eficácia da formação profissional dos estudantes, utilizando tecnologias educacionais à distância foi desenvolvido e testado experimentalmente. Foram identificadas as formas pedagógicas de aumentar a eficácia da formação profissional dos futuros especialistas em universidades que utilizam tecnologias educacionais a distância. As tecnologias educacionais a distância, são consideradas como um meio de aumentar a efetividade da formação profissional dos estudantes. O uso correto e o posterior desenvolvimento das tecnologias acima mencionadas melhorariam a competência profissional geral dos especialistas intencionados na área da educação.*

PALAVRAS-CHAVE: *Tecnologias de educação a distância. Formação profissional. Alunos. Modelo para aumentar a eficácia da formação profissional.*

RESUMEN: *La necesidad de incrementar la efectividad de la formación profesional de los estudiantes determina la búsqueda de nuevos mecanismos, modelos y tecnologías de organización de procesos educativos en una universidad basados en enfoques sistémicos, basados en competencias y orientados a la práctica. Se fundamentan los fundamentos teóricos y metodológicos para aumentar la efectividad de la formación profesional de los estudiantes, incluyendo enfoques científicos clave (sistémicos, basados en competencias, orientados a la práctica) y los principios de su realización (orientación profesional, competitividad, interdisciplinariedad, asociación social, práctica). orientación, apoyo pedagógico, regionalización). Se ha desarrollado y probado experimentalmente un modelo para aumentar la eficacia de la formación profesional de los estudiantes utilizando tecnologías de educación a distancia. Se han identificado las formas pedagógicas de aumentar la eficacia de la formación profesional de los futuros especialistas en las universidades utilizando tecnologías de educación a distancia. Las tecnologías de la educación a distancia se consideran un medio para aumentar la eficacia de la formación profesional de los estudiantes. El uso correcto y un mayor desarrollo de las tecnologías mencionadas mejoraría la competencia profesional general de los futuros especialistas en el área de la educación.*

PALABRAS CLAVE: *Tecnologías de educación a distancia. Formación profesional. Estudiantes. Modelo para aumentar la eficacia de la formación profesional.*

Introduction

The problem of specialists' professional training for various sectors of the national economy causes a constant interest from the state, employers, and the public. Of particular concern is the quality of professional training, which is firstly due to socio-economic changes

in society, a radical change in the spectrum of top professions and areas of training, the rapid "aging" of knowledge and information, and the intensive development of information technologies. The "breaking" of stereotypes of traditional forms of professionalization takes place in modern society. The new image of the profession chosen by students as a psychological and pedagogical phenomenon has a significant impact on the process of future specialists' professional training.

Despite the practical orientation of professional training, the close cooperation of universities teaching staff and employers in matters of students' professional training, the opening and functioning of basic departments, employers note that they have to "introduce a young specialist in the profession" at the workplace. This, in our opinion, is due to the intensive development of modern technologies in production and in education. Today what you know is in less importance than what you can do and your willingness to learn throughout your life.

In modern conditions of economic relations and fierce competition, knowledge, skills and experience are of particular importance in the labor market. In modern society, there is an active evolution of the global market for distance education, due to the rapid development of ICT technologies and an increase in the number of Internet audiences.

Methods

During the research, the following methods were used:

– theoretical: analysis of psychological and pedagogical literature to identify the state of problem development, systematize and generalize the scientists' views on improving the effectiveness of students' professional training using distance learning; modeling;

– empirical: diagnostic (questioning, testing, conversation), observational (observation, self-observation); pedagogical experiment – to identify the effectiveness of the proposed model to increase the effectiveness of students' professional training using distance learning.

126 students of the Humanities and Education Science (branch) Academy of the V. I. Vernadsky Crimean Federal University in Yalta took part in the experimental work.

Igor Olegovich GURIANOV; Natalia Vyacheslavovna KONOPLEVA; Nataliia Vladimirovna GORBUNOVA and Alina Alekseevna KHRULYOVA

Results and discussion

Issues of increasing the effectiveness of professional training are very important and are reflected in publications of domestic (N. Gluzman, N. Gorbunova) (GALLINI; GORBUNOVA, 2019; GLUZMAN; GORBUNOVA, 2017) and foreign authors (J. Joseph, R. Hrmo, J. Miština, L. Krištofiakova, L. Abbott) (JOSEPH, 2010; ABBOTT, 2005). Thus, J. Joseph emphasizes the importance of the "feeling" of efficiency, which gives self-confidence; considers efficiency in two dimensions: as self-efficacy and the expected high result of future specialists' professional training (JOSEPH, 2010).

The task of professional education and training, according to R. Hrmo, J. Miština, L. Krištofiakova, is the satisfaction of changing human needs and the world of work in accordance with the principle of lifelong learning. Education and learning systems are being modernized and transformed in terms of more effective management systems and quality assurance. A model for improving quality by applying elements of improving foreign language communication skills, improving computer literacy and improving the quality of teaching technical and professional subjects is considered (HRMO; MIŠTINA; KRIŠTOFIAKOVA, 2016).

Scientists emphasize that improving the quality of education requires effort, they consider that the choice of effective teaching methods is important for ensuring the efficiency and professional training quality. Among such methods, J. Dunlosky, K.A. Rawson, E.J. Marsh, M.J. Nathan, D.T. Willingham distinguish a detailed survey, self-explanation, generalization, selection, keywords, the use of images for text study, re-reading, practical testing, distributed and alternating practice (DUNLOSKY *et al.,* 2013).

During the educational process organizing at a university, in order to increase the effectiveness of professional training, distance educational technologies are widely used, realized mainly with the use of information and telecommunication technologies with indirect or incompletely mediated interaction between the student and the teacher. Scientists A. Andreev (2004), Verzhbitsky (2001), Polat (2004) and Tikhonov (1998) made a significant contribution to the development of distance learning methodology.

In the age of Internet technologies, many aspects of our lives are transferred to the network, accelerating the pace of the information society development and overcoming geographical barriers. Educational Internet space makes it possible to make learning complete and comprehensive. Among the advantages of distance learning courses, we can highlight the flexibility that provides for the possibility of the course content presenting, taking into

account the students' training and abilities; relevance – the possibility of introducing the latest developments; convenience – the ability to learn at a convenient time, in a certain place, the absence of restrictions on the time of material assimilation; modularity, a breakdown of the material into separate, functionally completed topics that are studied as they are acquired and take into account the abilities of each student or group; the ability to simultaneously use of a large amount of educational information, educational content; interactivity – active communication between students and the teacher; expanding the quality control of training, providing for discussions, chats, the use of self-control, the absence of psychological barriers; lack of geographical boundaries for education. The following researches demonstrate remarkable examples of the implementation of ICT in teaching foreign languages (HUIJIE *et al.,* 2017; GAFIYATOVA; DEPUTATOVA; BIKTAGIROVA, 2016; DAVLETBAEVA, 2016).

At the ascertaining experiment phase, in order to determine the effectiveness of future specialists' professional training, the criteria and indicators for assessing the level of students' readiness for professional activity were identified:

– motivational criterion with indicators: motivation of students to prepare in the field of the studied field; motivation for the independent development of professional activities in rapidly changing technologies;

– cognitive-activity criterion with indicators: mastering knowledge in professionally oriented disciplines; the formation of professionally significant skills, including and skills in the use of distance educational technologies;

– reflexive criterion with indicators: the formation of adequate self-esteem, independent increase of the level of certain types of activities learning and the expansion of the mastered technologies spectrum.

Based on the selected criteria and indicators, the levels of students' readiness for future professional activities are characterized: threshold, basic, sufficient.

The level of students' readiness for future professional activities was revealed through questionnaires, testing, interviews, observation, and self-observation. The formation of the motivational criterion indicators was checked using the methodology for diagnosing the motives of students' learning activities by K. Zamfir in the modification of A. Rean, questionnaires and interviews with students. The formation of the cognitive-activity criterion indicators was checked using testing in professionally oriented disciplines; tasks aimed at

identifying skills in the use of distance educational technologies. The formation of the reflexive criterion indicators was checked using observational methods: observation, self-observation.

The results of the ascertaining experiment phase are presented in Table 1.

Table 1 – Levels of students' readiness for future professional activities at a ascertaining phase (in %)

Levels	Experimental Group	Control Group
Sufficient	4.75	5.25
Basic	70.75	71
Threshold	24.5	23.75

Source: Prepared by the authors

4.75% of the experimental group respondents and 5.25% of the control group students showed a sufficient level of readiness for professional activity. Most students showed a basic level of readiness for professional activity: 70.75% of the experimental group future specialists and 71% in the control group. The threshold level was demonstrated by 24.5% of experimental group students and 23.7 % of the control group respondents.

The obtained results indicate the need for focused work to increase the students' professional training effectiveness using distance educational technologies.

At the formative experiment stage a model for increasing the effectiveness of students' professional training using distance educational technologies was tested. The developed model for increasing the effectiveness of students' professional training using distance educational technologies includes: targeted, theoretical, methodological, technological and effective components. The aim of the work is to select the content of professional training, which will increase the efficiency of future specialists' training. The model implements the idea of the possibility of the professional training content selecting based on the analysis of professional standards, identifying the necessary professional skills, and selecting the content of learning that are necessary for the formation of selected skills. The most important task of the educational process is to fulfill the social order of the society, which is reflected in regulatory documents: in the Federal state educational standards of higher education, professional industry standards, labor market requirements.

Theoretical and methodological foundations for the professional training content design are a set of scientific approaches (systemic, competency-based, practice-oriented) implemented through a system of principles (professional orientation, competitiveness,

interdisciplinarity, social partnership, practice-orientation, pedagogical support, regionalization) and content selection criteria.

The technological component implements the selection of the professional training content: professional skills → educational elements (the topic is a section of the training course, the assimilation of which ensures the level of skills and abilities formation, that allows us to proceed to the study of the next section). With the purpose of a model realization for increasing the effectiveness of future specialists' professional training using distance learning technologies, various platforms, instant messengers and applications are used in work with students: *Zoom*, *VKontakte*, *Skype*, *Viber*, *WhatsApp*, *Google Forms*, *Discord*, *YouTube*, *Mirapolis*, *Jitsi Meet*. The implementation of the model includes three stages: introductory stage, in which students are introduced to the work of the used platforms, the range of distance educational technologies; practical stage, involving the direct work of future specialists in the university electronic educational environment , the independent use of modern educational technologies in order to solve professional problems; creative stage, realized in the students' direct practical activity in production, in the process of preparation, presentation and implementation of projects. At all stages of the model implementation, the provision of students with educational content (electronic textbooks, lecture video courses, video seminars) is widely used.

The productive model component reflects indicators of increasing the educational process efficiency.

At the control stage, a repeated diagnostic section was performed in order to identify the effectiveness of the developed model.

Comparative results of the experimental work are presented in Table 2.

Table 2 – Comparative levels of students' readiness for future professional activities at the ascertaining and control stages (in %)

Levels	Experimental group		Control group	
	ascertaining experiment	control experiment	ascertaining experiment	control experiment
Sufficient	4.75	11.25	5.25	6.75
Basic	70.75	80	71	71.75
Threshold	24.5	8.75	23.75	21.5

Source: Prepared by the authors

Significant positive changes occurred in the experimental group. The number of respondents with a sufficient level of students' readiness for future professional activity increased significantly: from 4.75% at the ascertaining stage to 11.25% at the control stage.

The number of respondents with a basic level of readiness for future professional activity increased slightly: from 70.75% at the ascertaining stage to 80% at the control. The number of students with a threshold level of readiness for future professional activity was significantly reduced: from 24.5% during the ascertaining examination to 8.75% during the control examination.

In the control group, positive changes also occurred, although less significant. At the control stage, the number of respondents increased slightly with sufficient – up to 6.75% (was – 5.25%) and basic – up to 71.75% (was –71%) levels of readiness for future professional activities. The number of students with a threshold level of readiness for future professional activity decreased to 21.5% (it was 23.75%).

The obtained results indicate the effectiveness of the developed and tested model.

Summary

Thus, the analysis of psychological and pedagogical literature, the monitoring of the professional training process organization at the university, and the analysis of the state of the distance education technologies use have confirmed the need to develop and implement a model for increasing the effectiveness of training using distance education technologies.

The model for increasing the effectiveness of future specialists' professional training using distance educational technologies is implemented in three stages: familiarization; practical; creative. The methodological guideline of modeling is a set of scientific approaches (systemic, competency-based, practice-oriented) implemented through a system of principles (professional orientation, competitiveness, interdisciplinarity, social partnership, practice-orientation, pedagogical support, regionalization).

Comparative results of experimental work are presented and the effectiveness of the developed and tested model is proved.

Conclusions

Improving the efficiency and quality of future specialists' training in universities is determined by the use of new educational technologies in the educational process, taking into account the peculiarities of the formation of future specialists' professional competencies in various industries.

The 21st century specialist is a person who is fluent in modern information technologies, constantly raising and improving his professional level, professional mastery, gaining new knowledge, skills, and competencies. The acquisition of new knowledge and skills that are practically useful and used in work in the information society era significantly expands the possibilities of personal self-realization and provides career opportunities for young professionals.

The pedagogical ways of increasing the effectiveness of future specialists' professional training at universities have been identified, including: the development of students' motivation for professional training, the development of its technological foundations, the practical orientation of the professional training process, the improvement of the methodology of the problem-solving approach during the students' professional training.

REFERENCES

ABBOTT, L. The nature of authentic professional development during curriculum-based telecomputing. **Journal of Research on Technology in Education**, v. 7, p. 379, 2005.

ANDREEV, A. A. Introduction in the Distance Learning. **Distance Education**, 2004. Available: http://www.iet.mesi.ru/broshur/broshur.htm. Access: 10 set. 2020.

DAVLETBAEVA, D. N.; PANKRATOVA, E. S.; MINJAR-BELORUCHEVA, A. P.; BASHKIROVA, K. A. Foreign literature at the lessons of individual reading: contemporary methods of phraseological units teaching. **International Journal of Environmental and Science Education**, p. 1247-1255, 2016.

DUNLOSKY, J. *et al*. Improving students' learning with effective learning techniques: Promising directions from cognitive and educational psychology. **Psychological Science in the Public Interest**, v. 14, n. 1, p. 4-58, 2013.

GAFIYATOVA, E. V.; DEPUTATOVA, N. A.; BIKTAGIROVA, Z. A. New approaches to teaching reading English Texts at the senior stage of education. **Journal of Language and Literature**, v. 7, n. 1, 2016.

GALLINI, N. I.; GORBUNOVA, N. V. Systematization of Intellectual and Creative Resources of a Single Information and Analytical Area of the University. **Information Systems and Technologies in Modeling and Control**, pp. 236-242, 2019. DOI: https://doi.org/10.13140/RG.2.2.25681.07520

GLUZMAN, N. A.; GORBUNOVA, N. V. **Professionalism of the teacher**: success and career. Simferopol, 2017. 464 p.

HRMO, R.; MIŠTINA, J.; KRIŠTOFIAKOVA, L. Improving the quality of technical and vocational education in Slovakia for European labour market needs. **International Journal of Engineering Pedagogy**, v. 2, p. 14-22, 2016.

HUIJIE, L. U. *et al*. Cross-linguistic influence in teaching english to bilingual students. **Modern Journal of Language Teaching Methods**, p. 333-337, 2017.

JOSEPH, J. General student does intention matter? Assessing the science teaching efficacy beliefs of pre-service teachers as compared to the population. **Electronic Journal of Science Education**, v. 41, n. 1, p. 1-14, 2010.

POLAT, E. S. **Theory and practice of distance learning**. Moscow, 2004. 416 p.

TIKHONOV, A. N. **Modern education management**: social and economic aspects. Moscow, 1998. p. 181-182

VERZHBITSKY, V. V. Monitoring the Demand for Educational Services in the Open Education System. **Education in the Information Age**, p. 132–135, 2001.

How to reference this article