Preparation of future specialists in the field of life safety and physical culture for professional activities in the conditions of society digitalization

UDC 37.026

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Abstract

Objective of the study was to identify the readiness of future life safety teachers and specialists in the field of physical education to carry out their professional activities using digital educational technologies.

Methods and structure of the study. Experimental testing was carried out at the FSBEI HE "Bunin Yelets State University". The sample consisted of 100 subjects (control and experimental groups). The reliability of the obtained data was checked using the Mann-Whitney U-test.

Results and conclusions. In the educational process with the students of the experimental group, the method of practice-oriented learning was used with the use of modern information, interactive technologies and digital tools. They have been integrated into the process of vocational training and continuing education. The control group of subjects followed the traditional training route.

On the basis of a comparative analysis of empirical data and statistical analysis, a positive trend was established in the development of the information and communication criterion indicator of readiness that we identified among the students of the experimental group. The difference between the studied parameters in the subjects of the experimental and control groups was determined at a significance level of $p \leq 0.05$.

Keywords: *digital competence, future life safety teacher, specialist in the field of physical culture, professional training.*

Introduction. Digitalization has firmly entered almost all spheres of activity of modern man, which is explained by the processes of globalization and digitalization that are actively taking place today. It directly affected the system of higher professional education, stimulating personnel training in the field of life safety and physical culture based on modern information and digital technologies for high-quality problem solving in subsequent professional activities.

Digital transformation in higher education is understood as a complete restructuring of the learning process, a change in teaching methods and means, modernization of the model for the formation of professional competencies based on the use of modern digital information technologies, covering almost all content aspects [2].

At the same time, there is a problem of understanding by students the essence of the digitalization of education, which is the subject of the study by E.V. Frolova and O.V. Rogach [3]. It focuses on the importance of having digital literacy, that is, the skills to use information and communication technologies in modern realities. The new conditions for the activity of a future specialist in the digital environment entail certain difficulties, and in order to level all possible problems, it is necessary to master special competencies. In this regard, when preparing future specialists in the areas of training "Pedagogical education" (profile: Physical culture, Life safety) and "Physical culture" (profile: Sports training and physical culture and health work), special importance should be given to the competencies of the digital economy [1].

Taking into account all the positions indicated above, today it is very important to talk about the purposeful and structured training of specialists in the

field of life safety and physical culture to use modern information and digital technologies, which will subsequently allow them to solve a number of professional tasks, demonstrating a high level of digital literacy.

Objective of the study was to identify the readiness of future life safety teachers and specialists in the field of physical culture to carry out their professional activities using modern information and digital educational technologies.

Methods and structure of the study. Students of the training profiles "Physical Education, Life Safety", "Sports Training and Physical Education and Health Work" during their studies at the university should form competencies that testify to their digital literacy. The latter is a set of technical skills for searching, processing, storing, creating, presenting and communicating information exchange. In this regard, such training involves the following approach: the creation of an information and communication environment of an educational institution and the passage of additional professional education courses for students on the use of modern information, communication and digital technologies.

In order to evaluate the results of the study, experimental work was carried out FSBEI HE "Bunin Yelets State University". The sample of subjects consisted of 100 students in the areas of training "Pedagogical Education" and "Physical Education". Half of them (50 people) were trained along the traditional route (control group), the second half (50 people) - taking into account the approach described above (experimental group).

When determining the readiness for professional activity in the context of the digitalization of society among students of the experimental and control groups, the main importance was attached to the degree of formation of one of the criteria indicators - information and communication. For this criterion indicator, their levels were distinguished - high, medium and low, presented in Table. 1.

When identifying the dynamics of development of the criterion indicator of readiness, we used tests that involve checking the required knowledge, questioning, a system of test tasks, and observation. Experimental activities were carried out during the year.

Table 1. *Description of the levels of the information and communication criterion indicator of specialist readiness*

Level of the criterion indicator	Content of the criterion indicator
High	– the ability to work in an information environment; – the ability to independently create their own media products and distribute them; – the ability to independently apply modern information and digital technologies in the educational process (for example, during practice);
Middle	– the ability to work in the information environment without critical comprehension of the information received; – the ability to create media products and distribute them with the help of teacher consultations; – the ability to apply modern information and digital technologies in the educational process with the help of teachers' consultations;
Low	– lack of practical skills in creating media products; – primitive interpretation of information obtained from the information environment; – lack of ability to apply modern information and digital technologies in the educational process, even with the help of teachers' consultations.

Table 2. *Comparative results of the formation of a criterion indicator of readiness at the ascertaining and control stages of the experiment*

Stages of the experiment	Levels of information and communication indicator					
	Low		Middle		High	
	CG	EG	CG	EG	CG	EG
Ascertaining	(36) 72%	(33) 66%	(8) 16%	(10) 20%	(6) 12%	(7) 14%
Control	(35) 70%	(8) 16%	(9) 18%	(26) 52%	(6) 12%	(16) 32%

Table 3. *Statistical processing of independent samples using the Mann–Whitney criterion (mean and standard deviation)*

Parameter	CG		EG	
	Before the EW	After the EW	Before the EW	After the EW
Level of the information and communication criterion indicator	0,40±0,69	0,42±0,70	0,48±0,73	1,16±0,68*•

Note: * – the difference of the studied parameter in the experimental group of subjects at the level of significance p≤0,05; • – the difference of the studied parameter in the experimental and control group subjects at a significance level of p ≤ 0.05.

Results of the study and their discussion. The proposed approach to preparing future specialists for their professional activities using information and digital educational technologies has shown its effectiveness in the course of an experimental study (Table 2). The data obtained allow us to draw conclusions about the positive dynamics in the formation of the readiness of the students of the experimental group to carry out professional activities using modern information and digital technologies.

The use of mathematical statistics proves that the participants of the control and experimental groups have significantly different indicators, while the test subjects of the experimental group have a significantly higher indicator after the experimental work (EW) carried out than before its implementation (Table 3).

Conclusion. The analysis of the results showed a positive trend in changing the level of formation of the proposed indicator of the readiness of future life safety teachers and specialists in the field of physical culture to carry out their professional activities using modern information and digital educational technologies. In general, the study gives reason to believe that at the present stage of the development of the education system, the strategic direction of training specialists should be the formation of highly qualified professionals capable of carrying out their professional activities in the digital environment and the digital economy.

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