

institutions of our republic. However, a number of questions regarding their introduction into the educational process remain open.

So, what is the state of organization of education using the information-educational environment in the educational process of today's educational institutions, what are the achievements and shortcomings in this field, what are the problems that await their solution?

LITERATURE REVIEW

The use of the modern information-educational environment in the educational system required a revision of the concepts both in terms of content and substance. Therefore, attention has been paid to a new approach to education and training processes. When we say the educational process, we see the whole process of interaction between the professor-teacher and the student. Now this process is being combined with interactive educational complexes, video and audio lectures, computer programs, television and radio training courses. Teaching in this process directly depends on the student's greater internal capabilities, intellectual potential, information reception and assimilation characteristics. Many studies have been conducted by the scientists of the Commonwealth of Independent States and our republic on the problems of using the information-educational environment in the educational system, the theory, methodology, and practice of informatization of education. Including A.A. Andreev, O.E. Belova, A.V. Baraulina, N.A. Goncharova, E.N. Dronova, V.A. Krasilnikova, A.L. Nazarenko, L.F. Solovev, by scientists such as A.A. Abdukadirov, U.Sh. Begimkulov, M.H. Lutfillaev, F.R. Murodova, N.I. Taylakov, B.Z. Toraev, O.A. Tarabrin, T.T. Shoymardonov scientific-research works have been carried out. In the scientific-research works of these scientists, research on the methodology of using the information-educational environment in the training of future computer science teachers has not been sufficiently researched.

N.I. Taylakov commented on the existence of the following series of problems in the introduction of electronic education today [2]: insufficient readiness of pedagogical teams for the introduction of electronic education; lack of imagination of science teachers about the possibilities of e-learning, lack of capacity to use them; lack of specialists in the implementation of e-learning.

E.N. Dronova [4] thought that the online presentation of information-educational environments increases the interest of the learner in this subject.

In the implementation of these positive achievements, the organizers of educational activities of the information-educational environment should consist of video lectures, training programs, self-assessment and control diagnostic apparatus software, as well as problems for independent completion, laboratory works [3].

RESEARCH METHODOLOGY

Today, education through the information-educational environment is widespread in America, Germany, and Great Britain, and it is expected that education through the information-educational environment will cover the whole world at the end of the 21st century. In this regard, the Pennsylvania State University Distance Learning Center (worldcampus.psu.edu), California Virtual University (cvc.edu), Washington Open University (gwu.edu), Western Governors University (umuc.edu), Minnesota Virtual University (careerwise.mnscu.edu), University of Florida Distance Learning (fcd.ufl.edu) are contributing [4].

Today, more than 2 million students study at the Open University of Great Britain (open.ac.uk), this university has 305 regional centers and 42 other countries. In 250 centers of the university, 120,000 pupils and students study using electronic resources and audio-video materials related to physical and natural sciences. Educational centers similar to this open education exist in Canada, Austria, Spain, Pakistan, Netherlands, Turkey, India and other countries[5].

In Germany, education using the information-educational environment has its own characteristics. This educational system began with the planning of distance training of higher professional education specialists. Examples of higher vocational education institutions that train specialists through a network are Hagen (fernuni-hagen.de) and Dresden University of Technology (tu-dresden.de). More than 50,000 students are provided with educational resources for science and technology at the university.

ANALYSIS AND RESULTS

The success of the pedagogical experiment carried out in the process of conducting the pedagogical experiment shows the need to take into account its organizational and pedagogical aspects in this process. That is why special attention was paid to these aspects. The process of organizing experimental work was organized with the knowledge of the opinions and opinions of professors and teachers at the Navoi State Pedagogical Institute. Experimental work was conducted in 2020-2023 among full-time and part-time students of the Navoi State Pedagogical Institute in the field of "Computer Science Teaching Methodology". A total of 246 students were selected for experimental and control groups.

During the trial period, interviews and observations were conducted with the professor-teacher of computer science and students regarding the main features of information-educational environments. 18 computer science professors and 246 students participated in the interview and observation.

The results of the survey by professors and teachers revealed that 56.4% of teachers believe that it is necessary to use information-educational environments in the course of the lesson, 28.6% that it is appropriate to use them independently, 14.8% that they can be used to master difficult topics, and 0.2% help to master knowledge. they believed that it will not give.

The results of the survey by the students revealed that 45% of the teachers believed that it is necessary to use information-educational environments in the course of the lesson, 40.3% believed that it was appropriate to use them independently, 14.4% believed that they could be used to master difficult topics, and 0.3% believed that they do not help to master knowledge.

The results of the numerical data collected in 2022 were analyzed and summarized in the generalization phase of the experimental work, and a mathematical-statistical analysis was performed based on the Student-Fisher criterion in order to check its reliability. Appropriate mean values for samples using this criterion , dispersion coefficients and in determining mastery rates $A\%$ formulas were used. According to the obtained numerical results, the evaluation criterion of teaching effectiveness is greater than one, and the evaluation criterion of the level of knowledge is greater than zero. It is known that the performance of the experimental group is higher than that of the control group.

According to the calculation result, it was found that the average mastery rate of the experimental group was higher than that of the control group, that is, it increased by 11.4%.

CONCLUSION

In short, to prepare a teacher of computer science, it is necessary to study Office programs, graphic programs, database management systems, programming languages, and computer software and technical support. Therefore, it is necessary for future teachers to learn these software tools and computer hardware, and to have the skills to use them. One of the most convenient ways to master these software tools is to use them independently in an information-educational environment. This, in turn, requires the use of educational programs placed in the information-educational environment. Using the information-educational environment, independent learning of software tools, their use teaches intuitive understanding of the rules, finding the necessary information and working with them. Therefore, we recommend using the algorithm presented above and the provided information-educational environments in the training of future computer science teachers. This learning algorithm and information-learning environments are effective for making the learner more independent and self-assessed.

It can be concluded from the statistical analysis carried out above that it is possible to popularize the information-educational environment based on the presented algorithm in the training of future computer science teachers in pedagogy institutions of higher education.

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