

IMPROVING THE METHODOLOGY OF TEACHING THE SUBJECT “INFORMATION TECHNOLOGIES AND MODELING OF TECHNOLOGICAL PROCESSES” IN AN INNOVATIVE EDUCATIONAL ENVIRONMENT

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Abstract. *This article comments on innovative pedagogical technologies currently used in the educational process and methods of improving the methodology for the discharge of the subject “Modeling of information technology and technological processes” in an innovative educational environment.*

Keywords: *case study, blended learning, interactive lessons, using virtual reality technology.*

Introduction.

In recent years, the Republic of Uzbekistan has been conducting several scientific research on the formation of electronic and methodological resources aimed at ensuring the intellectual development of students, the creation of mechanisms for improving the quality of education through the widespread implementation of digital technologies in the profession, the introduction of modern information and communication technologies in education. In particular, the normative basis for the introduction of advanced pedagogical technologies into the teaching process of the science of “modeling of Information Technology and technological processes” is being created. Further improvement of the educational system in the field of information technology, development of scientific research and their integration with IT-induction " were established as master tasks. As a result, the possibilities of improving the methodological training of teachers in teaching informatics to students, the technology of organizing this process, the system and mechanisms of competencies related to activities are increasing.

The content of the teaching of the subject "Modeling of information technology and technological processes" in modern education is the main areas of application of modern pedagogy: computer literacy, direct participation in Group Management and training of students. The first is related to technology as a discipline. The second field of application is focused on the organizational problems of teaching, which should be considered in the context of teaching technology. The third direction concerns both teaching and educational technologies.

Computer technology, which uses computers as a medium of instruction or training, constitutes a specific class of educational technology. Consequently, it is more effective to consider computers as part of integrated technology.

Currently, the efficiency of using computers in education is low compared to the variety of equipment provided by modern computers. The reason is, as a rule, there are very few integrated computer-based technologies. Only computer-aided learning methods and guidelines are developed. However, due to the variety of side effects, this is not enough. This effect is ignored at the level of methods and instructions, but is taken into account at the level of technology.

Therefore, the introduction of a technological approach to learning and, especially, teaching is very relevant.

The model for the development of competence in the use of new innovative methods in the teaching of the subject "Modeling of information technology and technological processes" issues of improving the quality of education through the effective application of interactive educational methods "Case study", "Blended learning", "Interactive lessons" and "Using virtual reality technology".

Case study is a teaching method based on the analysis, solution and discussion of situations, both simulated and real. Case study does not have an exact translation into Russian. The English term or its Russian-language analogues are mainly used: case studies, business cases, case method, learning by practical examples, method of specific situations, situational training, situational tasks. [5]

Blended learning or hybrid learning, also known as technology-mediated instruction, web-enhanced instruction, or mixed-mode instruction, is an approach to education that combines online educational materials and opportunities for interaction online with physical place-based classroom methods. Blended learning requires the physical presence of both teacher and student, with some elements of student control over time, place, path, or pace. [6]

Students are your innovative learners! One-way lessons are very traditional and sometimes exhausting for you and your students, so create an environment where students feel encouraged to speak up and express their ideas. Students can join in-class activities in many ways, not just by raising their hands or being called out to answer. These days, you can find online platforms that help you make interactive classroom activities to save heaps of time and get all students to join instead of just two or three.[7]

Virtual reality systems are a new concept that is much more difficult to track. Korean scientist Hyun Kim claims in his articles that virtual reality (VR) has a positive effect on learning, since it allows the user to fully immerse themselves in an interactive virtual environment similar to real. VR creates a user environment with a 3D virtual background using advanced computer graphics and various displays and interfaces. This is why VR is widely used in many fields and fields, including education, where its application is becoming increasingly important in medical education.[8].

Research Methodology.

As part of the study, in the academic year 2021-2022, curricula, syllabuses, textbooks on informatics were analyzed by us and monitoring of educational downloads taught to students on educational courses was carried out. Despite the fact that there is enough time devoted to the category subjects of computer science being taught in higher education, it has been found that in the case of its teaching there are somewhat contradictory aspects. In particular, in the teaching of Informatics, there were cases when the potential of professors was not in line with the requirements of the period, professors were teaching theoretical knowledge in lectures without digital technologies; there were cases of obsolescence of the material and technical base, insufficient equipment in practical and laboratory training, the absence of modern computer constructs. Based on the above, methodological aspects of the use of digital technologies in education create the need to focus on the organizational, hygienic, ergonomic requirements of information training, as well as to integrate the content of training sessions.

Analysis and results.

In our experimental work, we used the Google Classroom cloud-based learning platform to provide hands-on training to students of objects designated as research objects with the aim of studying the benefits of using cloud computing tools in education. The study used thematic scientific resources, educational and regulatory documents, methods of study and analysis of educational and methodological literature, pedagogical observation, Social survey, comparative analysis of student activities, expert assessment, mathematical-statistical processing of research results. The results of the study showed that when teaching students, the subject “Modeling of Information Technology and technological processes”, practical and theoretical classes were conducted using Google's cloud-based software platforms. In order to study the advantages of using cloud computing tools in teaching Information Technology and process mathematical modeling in medical institutes, 75 students from five different groups of Pharmacy direction of Andijan State Medical Institute were randomly selected (Table 1).

Table 1

Results of a general assessment of students by the groups in which the experiment was conducted.

Rating	Experimental groups				Control groups			
	Experience in the beginning	%	Experience at the end	%	Experience in the beginning	%	Experience at the end	%
Rating (85-100)	15	20	20	26,7	12	16	14	18,7
Rating (85-100)	30	40	40	53,3	38	50,7	40	53,3
Rating (85-100)	20	26,7	15	20	15	20	12	16
Rating (85-100)	10	23,3	0	0	10	13,3	9	12
Total:	75	100	75	100	75	100	75	100

We calculate the degree of acquisition based on the following formula:

$$\bar{X} = \frac{1}{n} \sum_{i=1}^3 n_i X_i = \frac{1}{75} (20 * 5 + 40 * 4 + 15 * 3 + 0 * 2) = \frac{305}{75} = 4,06 \approx 4$$

In percentage:

$$X\% = \frac{4,0}{4} * 100\% = 100\%$$

$$\bar{X} = \frac{1}{n} \sum_{i=1}^3 n_i X_i = \frac{1}{75} (14 * 5 + 40 * 4 + 12 * 3 + 9 * 2) = \frac{284}{75} = 3,78 \approx 3,7$$

In percentage:

$$X\% = \frac{3,7}{4} * 100\% = 92\%$$

Conclusion/Recommendations.

In conclusion, this study, $(100\%-92\%) = 8\%$ the data from the experiment shows that the average acquisition in the experimental group has increased by 8%, as can be seen from the acquisition rate in the control group. From this it can be concluded that it can be seen that the indicator of the experimental group increased by 8% compared to that of the control group.

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